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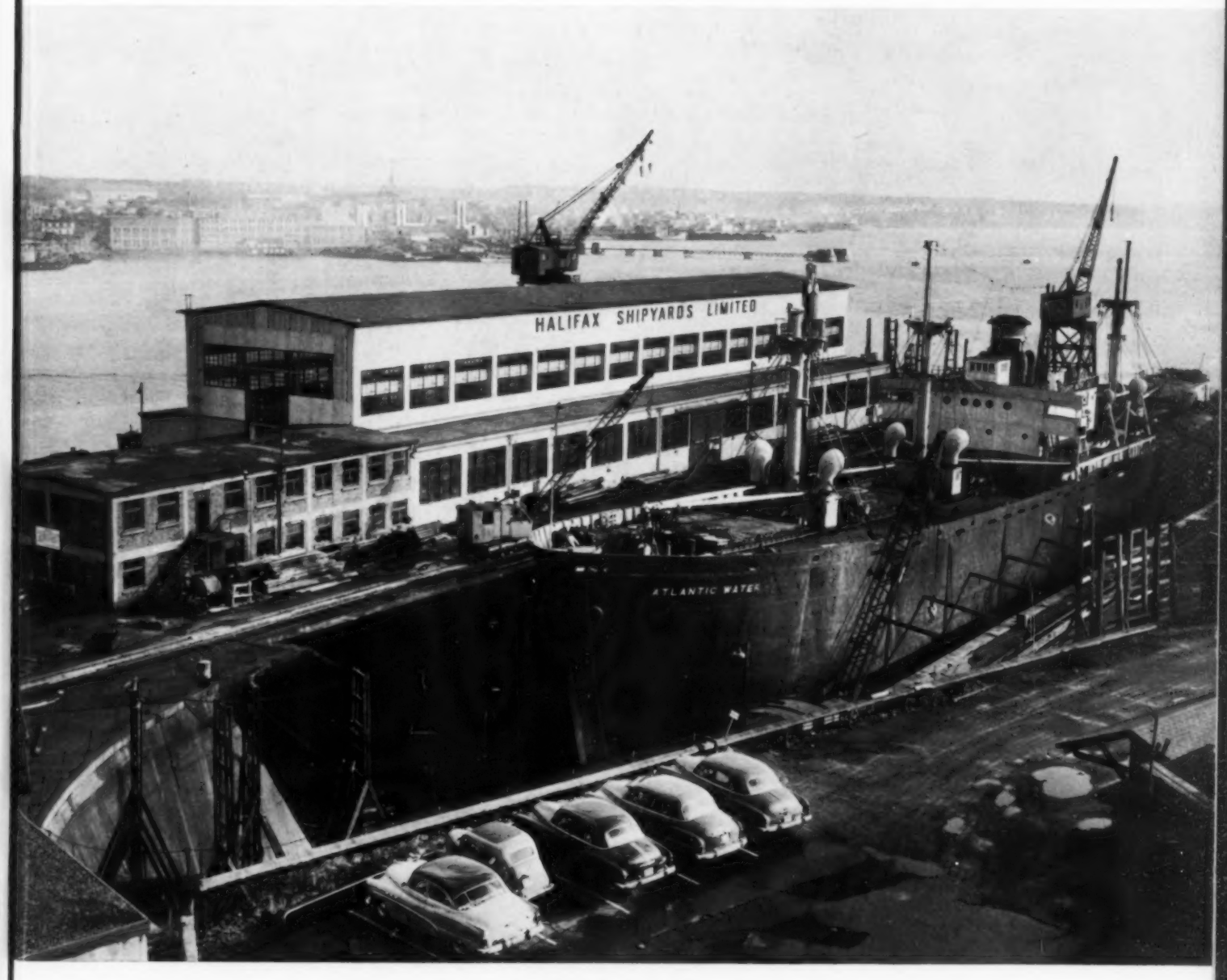

CONTENTS

MARITIME INDUSTRIAL EMPIRE
KWAKIUTL TOTEM
FISH OUT OF WATER
HANDICRAFT MATS OF DOMINICA

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CONTENTS

OCTOBER, 1956 ✦ VOLUME LIII ✦ NUMBER 4

COVER SUBJECT:—*Dominion Steel and Coal Corporation Ltd. dry-dock at Halifax* (*See* Maritime Industrial Empire, *page 124*).
Photograph by Bollinger

	Page
MARITIME INDUSTRIAL EMPIRE *by B. J. McGUIRE*	124
KWAKIUTL TOTEM *by PETER LOUDON*	146
HANDICRAFT MATS OF DOMINICA *by ADELAIDE LEITCH*	152
FISH OUT OF WATER *by DOUGLAS LEECHMAN*	154
EDITOR'S NOTE-BOOK	IX
AMONGST THE NEW BOOKS	IX
THE TRAVEL CORNER	X

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The steel plant at Sydney, heart of Dosco's great industrial empire, which employs 30,000 Canadians.

Photographs by courtesy of the Dominion Steel and Coal Corporation, Ltd. except where credited

Maritime Industrial Empire*

by B. J. McGUIRE

MEN, money, materials and methods — these are the ingredients of any successful industrial enterprise. When the men are counted in tens of thousands, the money in hundreds of millions, the materials in millions of tons and the methods embrace more than a half-dozen different and important industries, the enterprise assumes deep significance for the nation in general and its areas of operations in particular. Such an enterprise is the Dominion Steel and Coal Corporation, Limited.

Dosco, as it is commonly known, is a holding company operating largely but not exclusively in the Maritimes. The largest industrial employer in Canada, it is the only integrated steel company in the country producing steel entirely from Canadian raw materials. The economic influence of its long-range planning and day-to-day decisions on a large segment of the Canadian people is suggested by its diversified activities which include:

— Iron mining
— Coal mining
— Limestone quarrying
— Pig iron production
— Steel production
— Power plant operation
— Railroad operation
— Railway car construction
— Mining equipment construction
— Shipbuilding
— Steel fabrication
— Manufacturing an extensive range of steel products.

One of the senior enterprises in Canada in terms of continuity of operations, and a pace-setter in terms of modern techniques and methods, Dosco contains a rich blend of tradition and trail-blazing aggressiveness. The operations of the Dominion Coal Company

**A large industrial organization, the Dominion Steel and Coal Corporation Limited, has, for its survival, united extractive enterprises with fabrication industries for markets so located as to introduce transportation as a major element of costs.*

Limited date back to the earliest history of industrial activity in this country. The French soldiers of the Fort of Louisburg used Cape Breton coal to heat the fortress while they were defending it — unsuccessfully — against the British. Coal has continued to be an important product in this area. Throughout the 19th century — for more than 100 years before the large iron and steel mills were erected in Cape Breton — coal was marketed in the Maritimes, in the Atlantic Seaboard states, and the St. Lawrence Valley.

Two years ago, a memorial was unveiled by the Governor General of Canada, in a ceremony in New Glasgow, Nova Scotia, commemorating the pouring of the first steel ingot in Canada more than 80 years ago by a company which is now an integral part of the Dosco organization, one of the major Canadian producers of iron and steel.

The industrial empire described by the word "Dosco" is an extremely important aspect of the economy of the Maritime Provinces, providing direct employment for approximately 30,000 persons. The production of Dosco units in Nova Scotia accounts for a large percentage of the gross annual produce of the Province. Many Maritime communities rely exclusively on Dosco operations and most people in the eastern provinces are affected either directly or indirectly by the fortunes of this company's operations, and the pace at which they proceed.

Steel is the life's blood of the Dosco enterprise — and the chief raw materials of a steel industry are iron ore, coal and limestone. Iron ore deposits in Pictou County and Cape Breton, together with adjacent coal deposits, gave first life to the Maritime steel industry — but local iron ore deposits could provide sufficient nourishment to sustain the young industry for only a brief life span. By the end of the 19th century, it became apparent that to survive, the Maritime steel industry required new iron ore reserves.

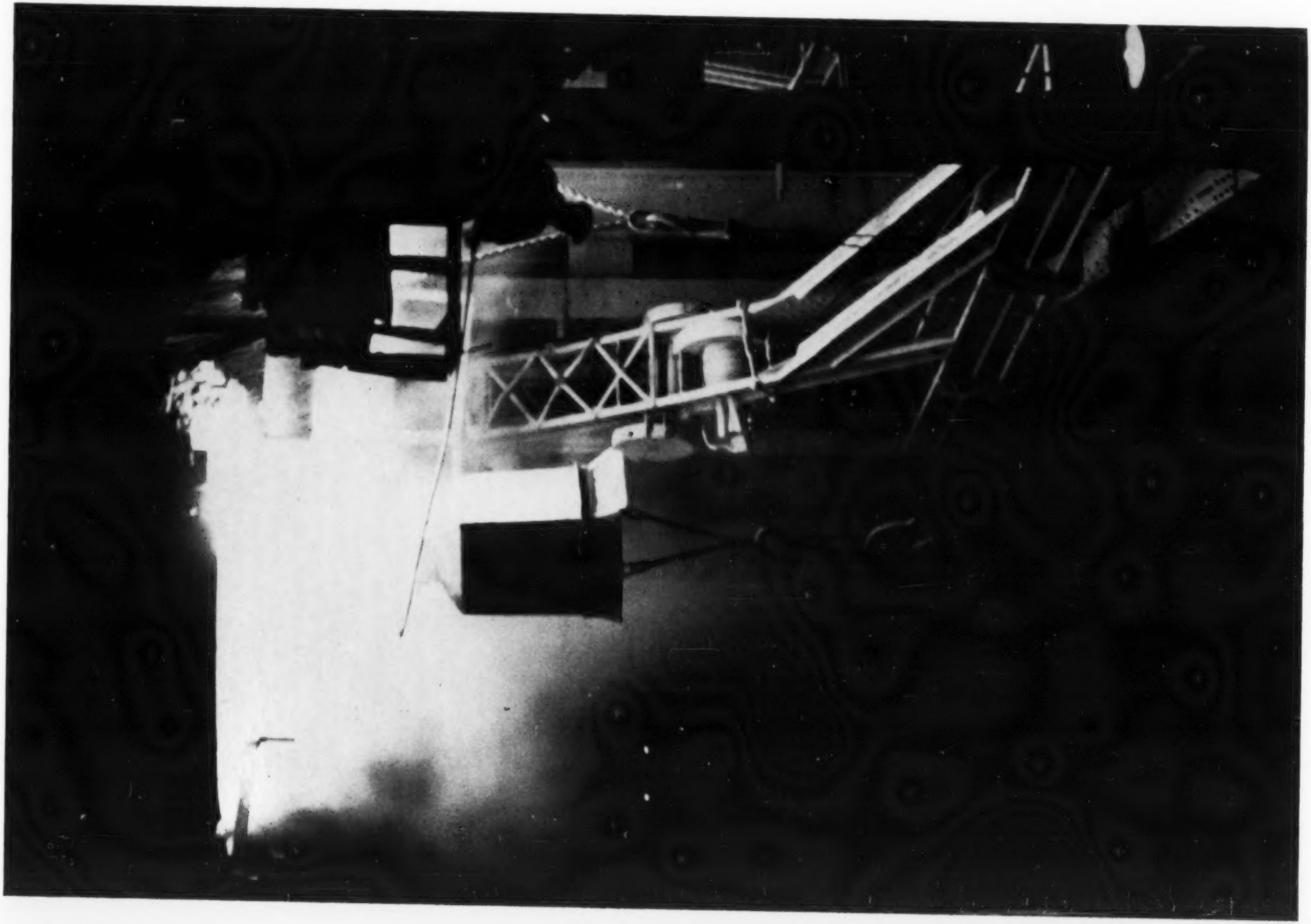
Coincidence, richly and appropriately related to the seafaring traditions of the Maritimes, interposed to give the struggling young industry a new lease on life and to roll back the horizons of its future beyond anything previously anticipated. Each autumn it was the custom for schooners to sail in ballast from Newfoundland to Cape Breton ports to obtain the winter's supply of coal. It was noted that vessels sailing from the Conception Bay area carried an unusually heavy type of rock as ballast. Geological detective work identified this rock, at the close of the 19th century, as high grade iron ore. Its source was Wabana — an Indian word meaning "place of first light" — on tiny Bell Island on the eastern approaches to Newfoundland. Wabana was to become the world's largest subterranean iron mine — and in the process would make Dosco one of the largest industrial empires in Canada.

The Maritime steel industry entered the 20th century with its supply of raw materials assured for generations to come. Cape Breton Island was coal-rich. Immense quantities of iron ore lay waiting to be mined under Bell Island. Aguathuna — an Indian-Eskimo word meaning water and stone — on the west coast of Newfoundland provides the third raw material, limestone. Ice-bound in winter, Aguathuna seethes with activity during the navigation season as metallurgical grade limestone is drilled and blasted from the face of the cliffs to be moved by truck to the crushers and then to waiting vessels.

It is at Sydney, on a great natural harbour in Cape Breton Island, that these raw materials meet to be converted by human effort and knowledge into the useful product which gives the industry meaning. Tide-water location of Sydney and its chief sources of raw material give logic to its location as a steel-making centre. A further consideration was its utility as a market for the adjacent coal industry which found cheap transportation to many of its markets hampered for several months during the year because of ice. Today, Sydney requires a million tons of coal annually — almost 20% of the coal produced in Cape Breton. Sydney itself, created from iron ore, limestone and coal, is a city of 30,000 with a per capita income ranking among Canada's highest income areas.

If Sydney can be considered the nerve centre of the Dosco empire, with her raw materials to the east and fabrication facilities to the west, Wabana can be considered the eastern anchor of the empire. Located 12 miles from St. John's

Right:—Tapping open hearth furnace and putting in additives.



and separated from the mainland by a strait known as "The Tickle", rugged but picturesque Bell Island is the home of 12,000 people whose main source of livelihood is the Wabana Iron Mine. On Bell Island the iron ore dips in flat seams to the north under the floor of the ocean. Surface mining operations have produced many millions of tons of iron ore, but the underground reserves are now the major source of future supply. The ore occurs as deposits sandwiched between layers of other sedimentary rock. Accurate measurement of reserves is extremely difficult because of their location beneath the floor of the ocean, but the Wabana deposits have been estimated to contain up to three billion tons of iron ore. Few existing mines surpass this impressive figure. Certainly it provides accessible reserves for the foreseeable future.

Mining operations have penetrated only a few miles beneath the sea, but development headings are being driven to the east, the west and the north to "block out" ore for use in the future. Actually it may never be possible to exploit fully the iron ore reserves at Wabana because increasing haulage distance will add significantly to the cost of producing ore as the years pass.

Like the coal, steel production and fabrication units of the Dosco empire, Wabana today is responding to a policy announced by L. A. Forsyth, who became president of the corporation about the end of World War II. The son of a Bluenose sea captain, one-time professor of romance languages in the University of King's College, Halifax, and later a successful corporation lawyer, Nova Scotia-born Lionel Forsyth brought to the post a life-long interest in the Maritimes and their largest industry. Under his presidency the corporation announced its policy for the immediate future: emphasis would be placed on modernization and mechanization of the industrial giant whose operations extend over 2,000 miles of Eastern Canada. Far from being excluded, expansion was included in this program, but the main objective was to expand production and productivity by modernizing and mechanizing operations to make full and effective use of the vast potential within the enterprise.

Mechanized mining techniques are now a reality at Wabana, pivoting around three basic types of equipment: (a) Joy Loaders and shuttle cars; (b) drag and hoist operations; (c) power shovel operations. An important sequence in the process is the Joy Loader-shuttle car operation. Equally important is the conveyor belt mining technique developed at Wabana, which could revolutionize hard-rock mining methods the world over. By this process, ore travels from the crusher pockets to the surface on the world's longest slope conveyor.

At the surface a new million-dollar concentration plant employs the principles of heavy media separation which allows the rock, rich in iron ore, to sink to the bottom of the tanks while the lighter waste material floats off. Another conveyor belt moves the ore across the island to the loading pocket. The loading pocket itself is unique. Gouged from the face of a 230-foot cliff, its base is a pier with conveyors capable of loading a 10,000-ton vessel in 90 minutes.

Wabana is now geared to produce more than 14,000 tons of iron ore per day. As a result of long-term contracts obtained in 1955, the output for the mine is sold to steelmakers in the United Kingdom, Europe and in Sydney for some years to come. The problem now is one of production rather than of sales. A new labour contract at Wabana gives promise of alleviating this problem. This contract, unusual in the annals of labour-management relations in Canada, ties the level of wages directly to the volume of production of the mine.

Wabana, which has been producing iron ore for more than half a century, is larger and more important today than ever before. Against this background it is somewhat paradoxical that the mine is not as well known in Canada as some others. One reason may be that the ore contains almost 1% phosphorous which renders it more suitable for use in Europe than in North America where steel-making practices are based largely on low phosphorous ore from the Mesabi Range. Its location on the eastern approaches of Newfoundland, which became a member of the Canadian Confederation only seven years ago, may be a contributing cause. Within or without the spotlight, it remains an

Eastern anchorage of the Dosco empire, Wabana Iron Mine on Newfoundland's Bell Island is estimated to contain 3,000,000,000 tons. Ore is moved across the island by conveyor belt to loading pocket where a 10,000-ton vessel can be loaded in 90 minutes. National Film Board

important segment of Canadian industry which will achieve greater significance with the passing of the years.

Historically and economically, the coal industry of Nova Scotia, like the seams themselves, is deeply imbedded in the heart of the province. A major industrial enterprise in its own right, coal has been mined commercially for more than two centuries in Nova Scotia. Six million tons of coal flow annually from the mines operated by Dosco in Cape Breton and Pictou County to form a major and necessary part in Canada's fuel supply. The role of these mines as a source of employment and wages may be gauged from the fact that more than $35,000,000 was paid in 1955 in wages to the 11,900 part and full time men engaged in the mining of coal. More than 20% of the population of the province depend either directly or indirectly on the coal industry for a livelihood.

Historic methods of mining coal have changed dramatically in recent years. In response to the company's policy of mechanization, the drill and the miner's pick have given way to new and modern methods of mining. So, too, has the room and pillar method given way to long wall operations. The star in today's coal production is the Dosco Miner, a huge, 20-ton mechanical monster which is affectionately, and otherwise, known by its operators as "the pig". This machine is capable of gouging coal from the long wall face and delivering it to the loading conveyors at a rate of one and one-half tons in ten seconds.

Long wall mining and mechanical mining

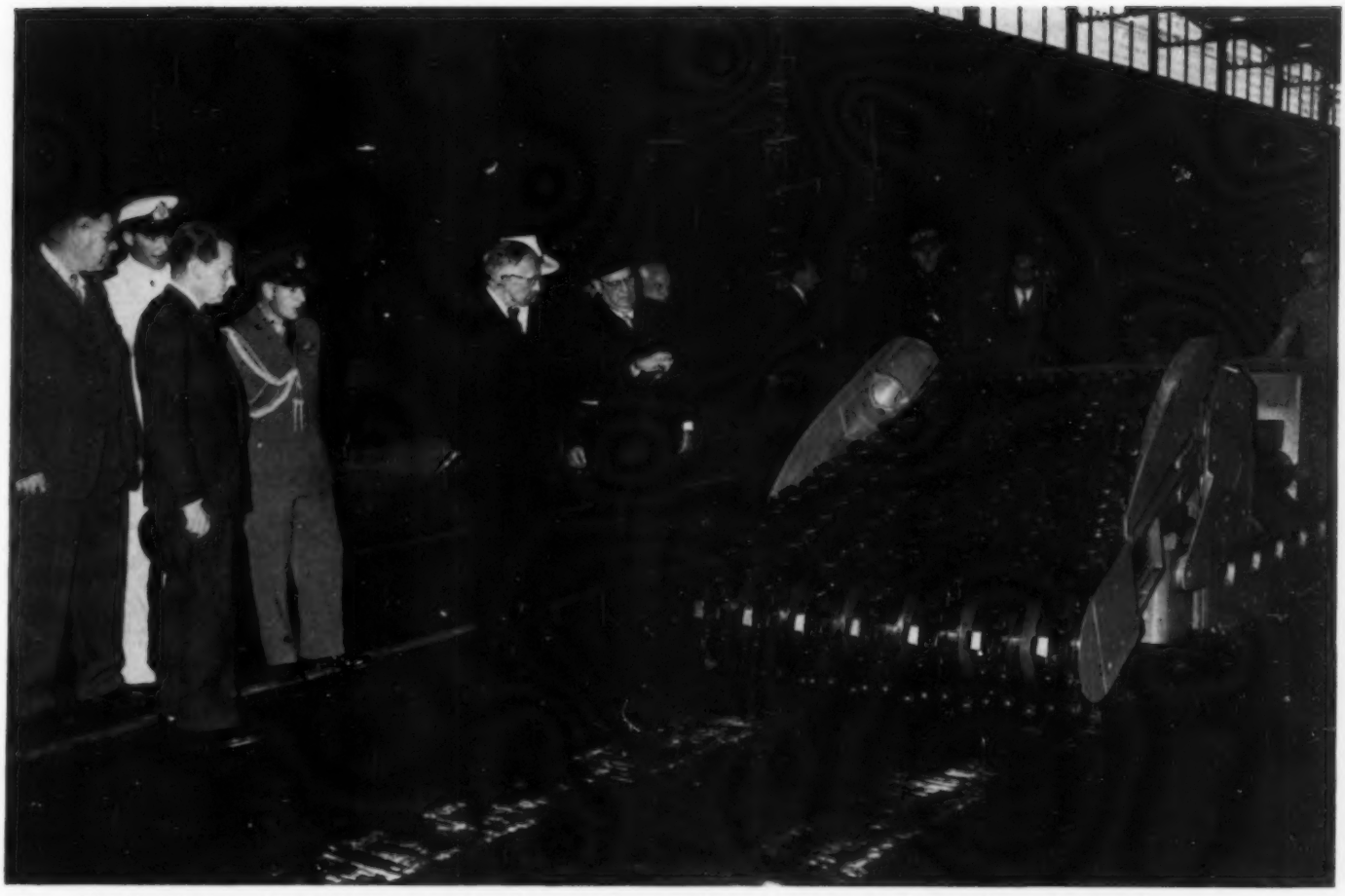
equipment are only a part of the extensive mechanization and modernization program. Underground transportation facilities are being improved, lighter coal cars are being used, diesel engines speed the coal along the tunnels from the working face to the hoists which raise it to the surface. Modern washing plants now assure the consumer a superior quality of coal.

The purpose of the mechanization program, which has already involved the expenditure of some $12,000,000, is to provide cheaper coal and better coal. With lower prices, it is hoped that Maritime coal will continue to hold a proper share of the Canadian market.

To an industry which historically has been based on human energy, mechanization introduces the problems of mass production. Survival as an important industry requires that coal be produced in large volume to reduce costs, and low costs are of vital importance in determining the market for the output of the collieries. Today, the competition from bunker oil at seaboard and from competitive fuels is particularly keen. Canadian railroads have sharply curtailed the use of coal because of the dieselization program. The railroads have long been the largest individual consumers of Maritime coal. Coal consumption in Canada is, as a result, expected to drop in the next five years before resuming its upward trend, and these years are likely to be particularly difficult ones for the Nova Scotia collieries. Although the per capita consumption of coal is declining, the growth in population provides an assurance of a larger future market for it in Canada.

The salvation of the Maritime coal industry will depend in large measure upon the result of the mechanization program. Production per man-day must be increased and coal costs decreased to permit Nova Scotia coal to continue to compete in the St. Lawrence Valley market. Confidence in a solution to the industry's difficulties is justifiable. The cost of coal bears a direct relationship to the output per man-shift. A 15% or 20% increase in the production per

New method in coal mining. Engineered and designed by company engineers, Dosco Miner digs and loads coal from the face, without explosives, at the rate of 500 tons in eight hours. Sheddon



His Excellency, the Right Honourable Vincent Massey, Governor General of Canada, with Dosco's president, L. A. Forsyth, Q.C., examines the 20-ton Dosco Miner in the corporation's plant at Trenton where it is manufactured. Mackenzie Studios

man-day would go far towards solving both the financial and the marketing problems of the industry. It is not unrealistic to expect such a measure of improvement and that the coal mining industry can again be made to play an interesting and profitable role on the Canadian industrial stage. Both company and miner are playing for high stakes in the current drive for higher productivity: the company for survival and expansion, the miner for the higher wages a profitable operation can provide.

Improved technology in production methods has been accompanied by measures which reduce the ever-present hazards in the coal mining industry, but the fact remains that the coal miner's job is a most demanding task and one which requires skill, courage and experience.

Located a few miles from Sydney are the plants of Seaboard Power Corporation, which provides an interesting and useful market for Cape Breton coal. The Seaboard operation is unique in that the plant has been designed to burn fuel of a class that would not otherwise be marketable. This power plant has had to expand rapidly in recent years to supply the growing demand for power in Cape Breton.

Coal is most popularly known as a form of fuel—but its utility to the human race extends far beyond this. Literally hundreds of products trace their origin to coal while the development of the chemical industry offers pleasant speculation on new uses for this age-old product in the future. About one million tons of Dosco coal is shipped annually to the steel plant at Sydney, but before it is employed in the great blast furnaces, it must be converted into coke. In this process it yields an impressive array of by-products. Processed and refined, these gases and liquids are used in the manufacture of such chemicals as benzol, toluol, ammonium sulphate and sulphuric acid.

In the process of reducing coal to coke—composed of almost pure carbon—at Sydney, the resulting gases are captured, cleaned and used extensively throughout the steel plant in

heating furnaces and for the generation of power.

Coke, which represents about two-thirds of the original weight of coal charged to the coke ovens, is produced in Sydney in two new coke oven batteries which were built at a cost of eleven million dollars. Together, the two batteries have 120 ovens which are capable of producing more than 2,000 tons of coke per day.

About one ton of coke, two tons of iron ore, half a ton of limestone and 3½ to 4 tons of air at a temperature of 1,000°F. are required to produce one ton of pig iron. It is from the tremendous volume of hot air which is blown through the blast furnace that this equipment derives its name. And the blast furnace is the heart of the steel mill.

Sydney, with its towering, belching smokestacks and fiery furnaces, is more than a steel-making centre. Steel is also fabricated here. Subsidiary operations include ore docks, raw material stockpiling equipment, coal and ore handling equipment, a sinter plant, a brick plant, carpentry shops, a foundry, machine shops, miles of railroad and all the many services which are required to keep a plant of this magnitude functioning efficiently. The plant meets the largest payroll in the area. Some 5,000 men, many highly skilled and all highly paid, by Canadian standards, work here.

Three blast furnaces capable of producing 550,000 tons of molten pig iron each year yield the metal required to make Sydney a steel city. Throughout the process of making steel, it is desirable to work at high temperatures and whenever possible, the metals are not allowed to cool between the various steps of the process. Most of the production of the blast furnace is transferred directly to the hot metal mixer, a huge tank in which the molten pig iron is held until it is drawn for refinement in the open hearth furnaces.

Some industrial philosopher once observed that the difference between iron and steel is not what it is, but how it acts. Steel is much stronger and more ductile than is iron. At Sydney, steel is made in open hearth furnaces and in electric furnaces. Both of these methods have the same end result but the process is quite different. In the open hearth furnaces, the purification of a mixture of scrap and "hot metal" combine to produce steel of the desired quality. Each of the five Sydney open hearth ovens produces 130 to 200 tons of steel each half-day. The electric furnaces are used largely to make special steels and although experiments have been conducted on the use of "hot metal" in electric furnaces, the raw material generally used is scrap. About 95% of Canadian-made steel is produced by the open hearth method. To the capacity at Sydney, there is now being added a new open hearth furnace which will raise the output of the Sydney plant by 130,000 tons for an open hearth capacity of approximately 850,000 tons per annum.

The processes in the fabrication of steel are largely those of squeezing and shaping. From the soaking pits, where steel ingots are reheated to make them uniform in temperature throughout, they move to their first squeezing and shaping operations at the blooming mill.

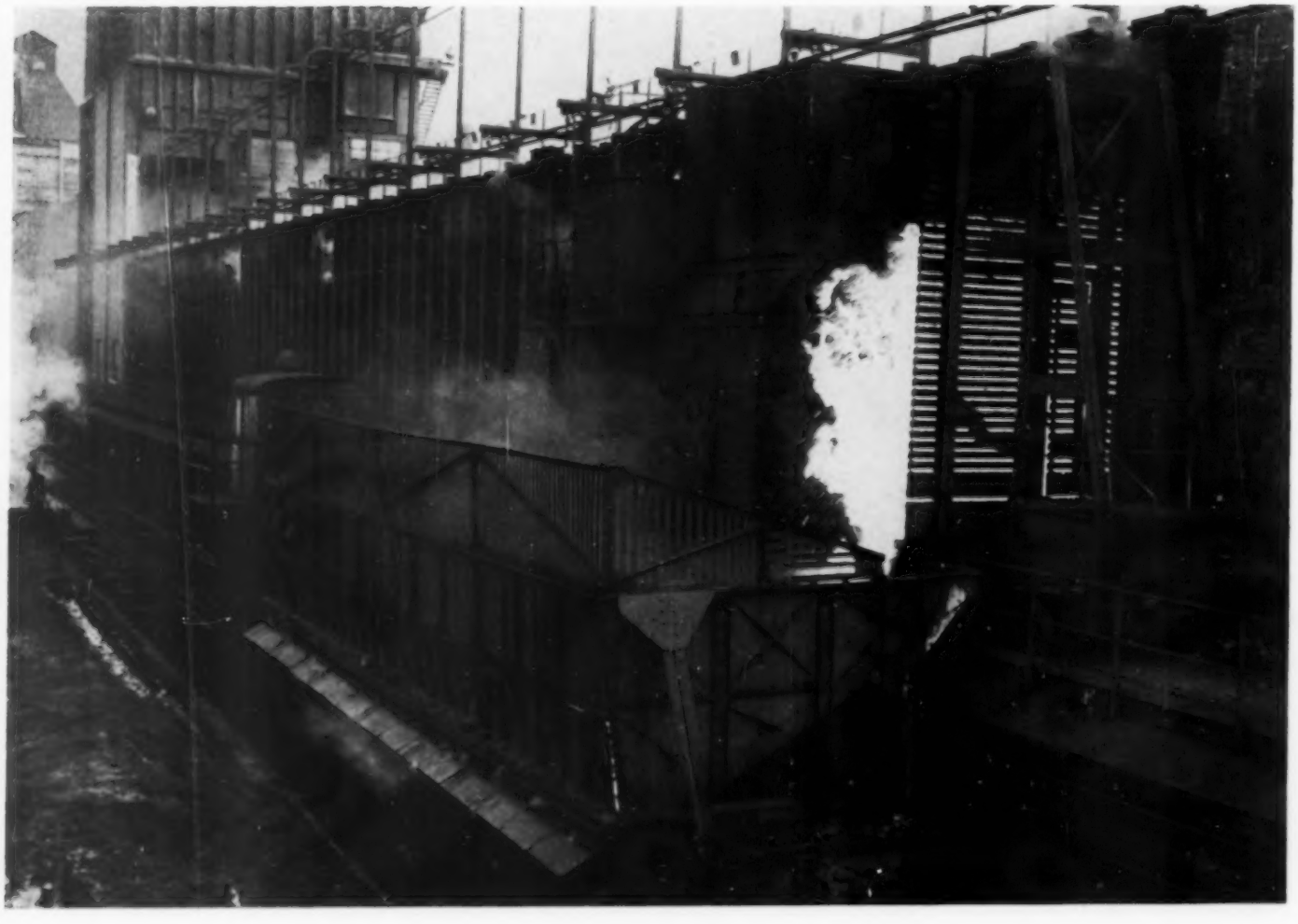
A new twin-drive 35" blooming mill came into operation at Sydney at the beginning of 1953, and was modernized at a cost in excess of five million dollars. It is one of the most modern installations of its type on this continent and is capable of processing up to 1,000 tons of ingots per 8-hour shift.

The transformation of steel into useful articles commences at the blooming mill. A five-ton ingot would be approximately 2 feet square and between five and six feet long. The ingot is successively passed through the reversible roll of the "bloomer" until it has been reduced to the required cross-sectional area.

After cropping the ends, the blooms follow one of two courses. One path leads to the billet mill; the other to the rail mill. The billet mill at Sydney further reduces the cross-sectional area of the hot blooms so as to provide raw materials for the bar and rod mills in Sydney and the rolling mills at other units of the corporation.

Rails are an important part of the total volume of finished products produced at Sydney. The process of making rails is a continuation of the squeezing and shaping which

Right:—Coal mining and steel making are long-established traditions in Nova Scotia where industrial architectural patterns reflect the gigantic nature of the task of turning raw materials into the sinews of a nation. Capping a coke oven after charging with coal.

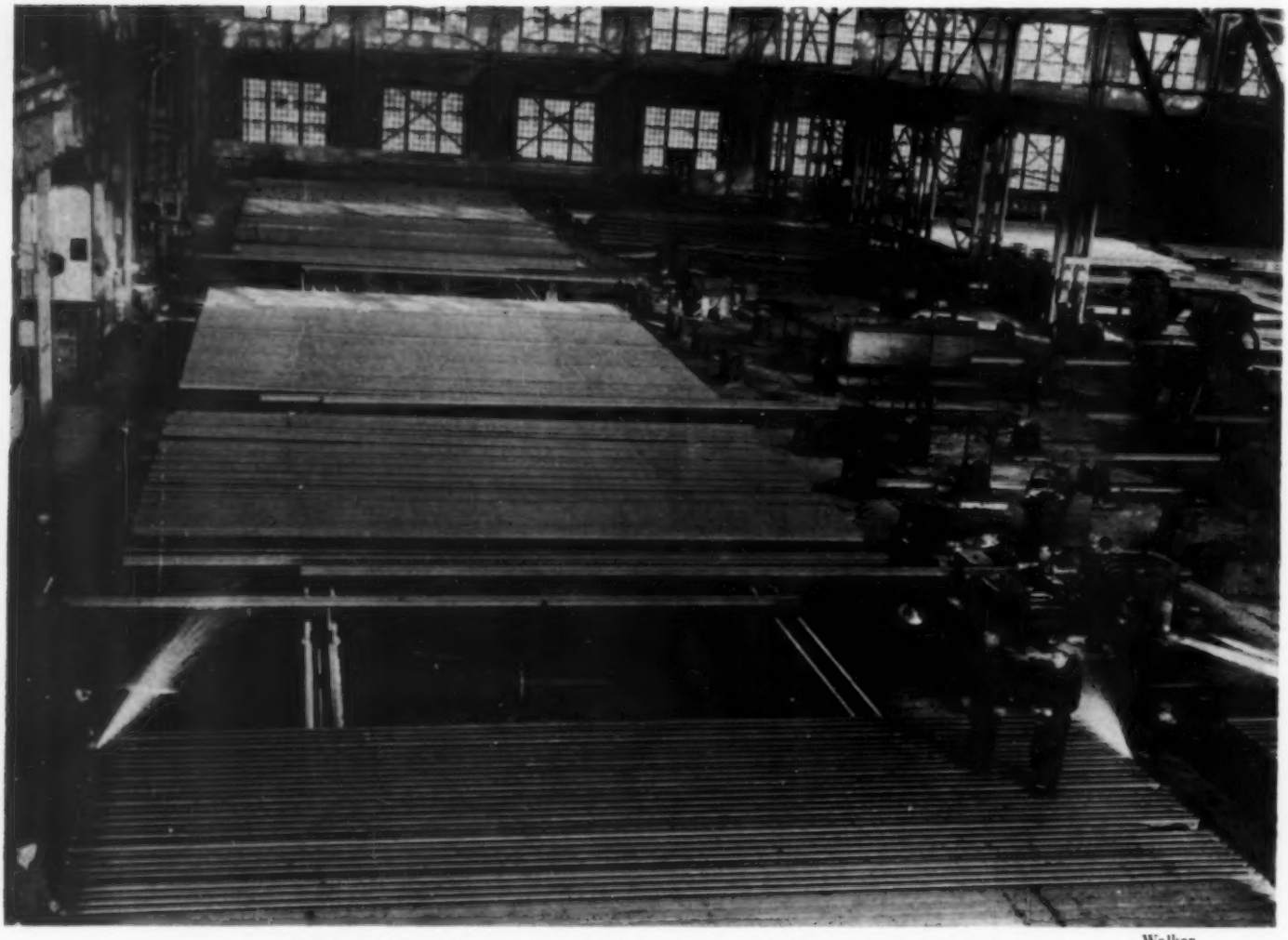


Left:—Limestone, iron ore and coke, the raw materials of a steel mill, meet at the charging side of the Sydney blast furnaces. Walker

Lower Left:—Cape Breton coal, now converted into coke, is received from the coke ovens by the quenching car at the Sydney steel plant.

Right:—Molten iron from Sydney's blast furnace is charged into an open hearth furnace for conversion into steel. Nova Scotia Film Bureau

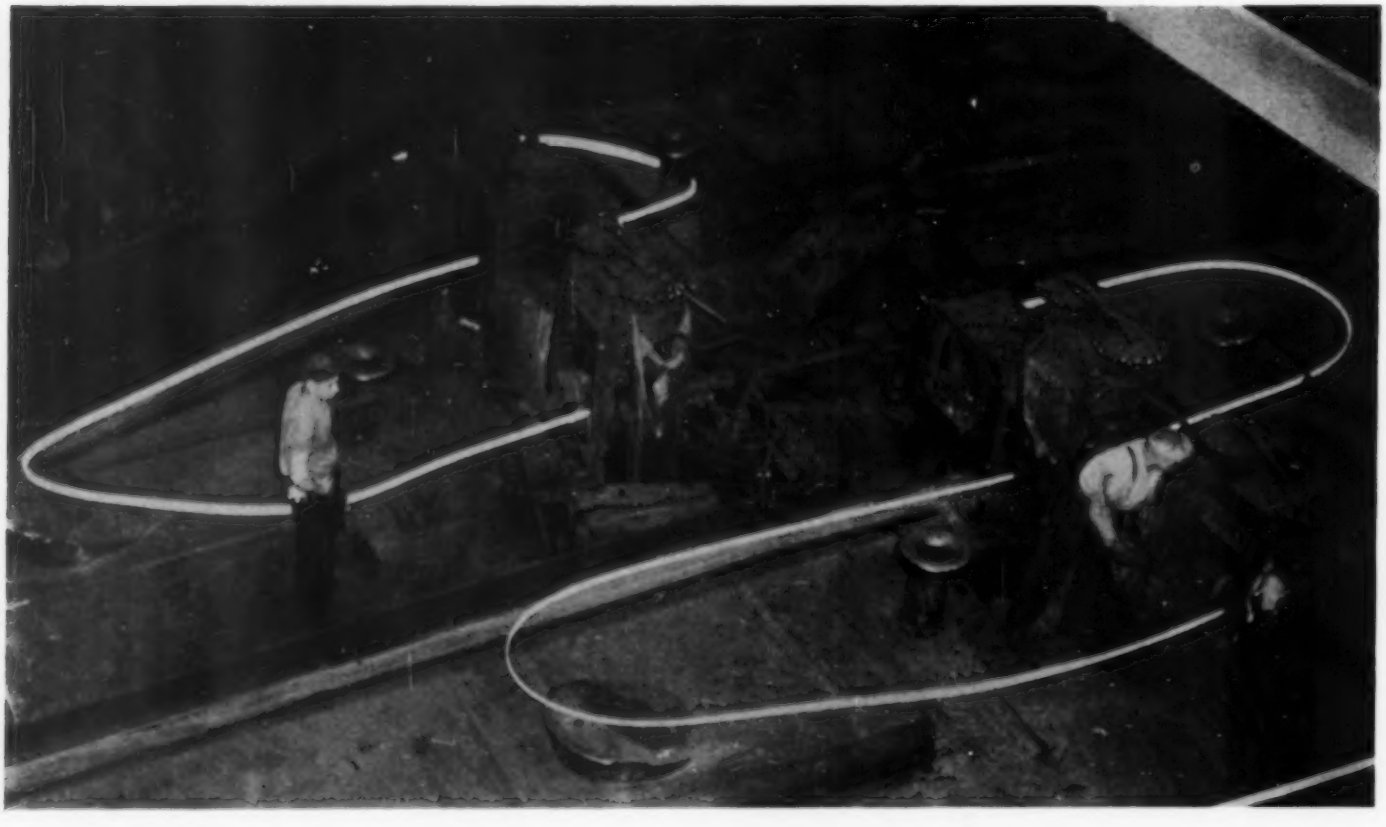
Below:—Scrap metal is extensively used along with iron for making steel in the open hearth furnaces. The machine on the right is charging the furnace at Sydney.



Walker

Rail finishing mill in Sydney steel plant is one of the most modern in the world.

Steel billets, passing through series of reducing rolls, are converted into smaller-sized rod and bar.



Nail making in Dosco plant. Nails are made from steel wire. Nova Scotia Film Bureau

started in the blooming mill. After passing through a reheating furnace the red-hot bloom is transformed by successive passes through the rolls of the rail mill into that familiar commodity, the steel rail. The rails are cut to length and are transferred to a cooling bed.

An important contribution of Sydney to the world of steel rail making is the Mackie Retarded Cooling Process. This process, developed by the Chief Metallurgist of the corporation, is now used the world over by producers of rails. The Retarded Cooling Process relieves the rails of internal stresses which would develop if they were allowed to cool at a faster rate.

The new rail finishing mill at Sydney is one of the most streamlined and efficient operations of its kind. Here the rails are straightened, drilled and thoroughly inspected before they are shipped to the consumer. Now operating at Sydney is a new end-hardening process employing the techniques of induction heating and air quenching which is the first installation of its kind on this continent.

At the billet mill, steel from the blooming mill is shaped and squeezed into bars of steel 1¾ to 3½″ square, and 28-30 feet in length. Known as billets, steel in this form may be shipped to other units of the corporation from Sydney; it may be sold in the domestic and export markets; or it may be used in the bar and rod mills at Sydney.

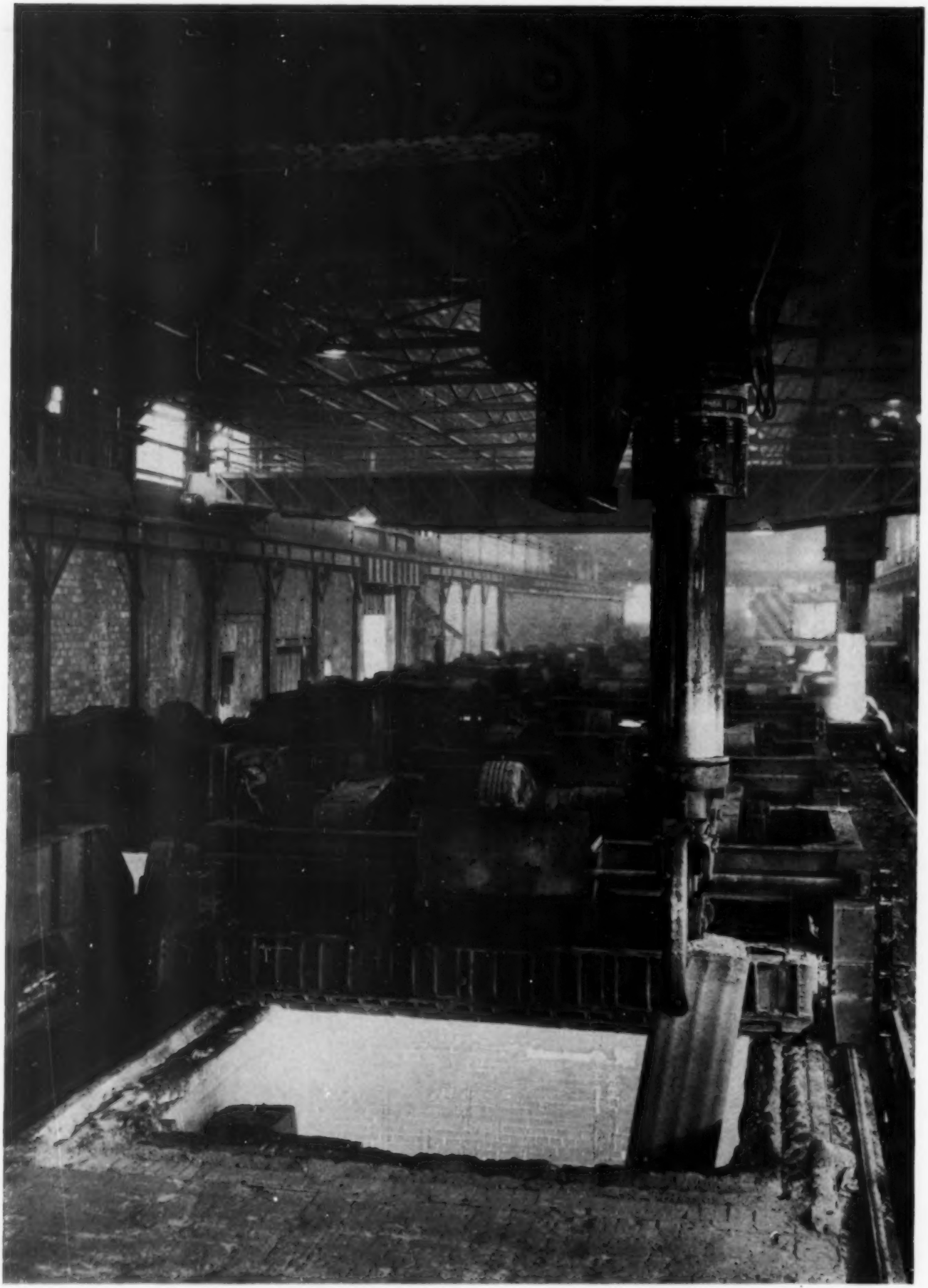
The rod and bar mills perform functions which are similar in character to that of the billet mill. The billets, after being reheated, are passed through the rolls of the rod mill to provide coils of steel rod ranging from one-fifth to one-third of an inch in diameter. This product is the raw material of the wire-drawing machines which in turn provide for the production of nails, staples, screws, bolts, fencing and the many and varied wire products that the consumer relies on for daily use.

Some of the rod is shipped to units of the corporation in Saint John, Montreal, Toronto and Windsor as well as to outside customers. Some is cleaned, coated and drawn in the Sydney wire mill, to which it is conveyed on an underground conveyor.

The basic product of the wire mill is called Bright Process Wire, which can be used directly for the production of many useful items or can be further processed through patenting furnaces or the galvanizing line to make different products.

The bar mills produce straight lengths, coils, heavier sections and angles, channels and all the various products required by industry.

One unchangeable fact poses a continuous problem for the Sydney-centred Dosco industrial empire: it is approximately 1,200 miles from Sydney to Toronto. About 60% of the Canadian population and the Canadian home market is located in the economic triangle bounded by Windsor, Montreal and Ottawa, with Toronto at its centre. The freight rate costs borne by Maritime enterprises trading in this area add significantly to the corporation's marketing problems. This impost weighs most heavily on the finished products. A related fact is that over the years, several Dosco fabricating enterprises have been established in the central provinces. Efforts have been made to retain and



Steel ingots from Sydney's open hearth furnaces go into soaking pits where they are reheated to a temperature uniform throughout the ingot before moving to blooming mill.

Nova Scotia Film Bureau

A 7,000-ton forging press, largest in Canada, was installed in Dosco's Trenton steel works in 1954 at a cost of $3,000,000. Forging axles for railways is an important activity of this plant.

develop in the Maritimes those fabrication enterprises which, by geography and skills, are most appropriate to this area.

At Trenton, Nova Scotia, in Pictou County, are the plants of the Nova Scotia Steel and Coal group of companies which include Trenton Steel Works, Trenton Industries and Eastern Car Company. Trenton Steel Works is engaged in forging and machining of heavy shafts, axles and rotors. At this location is Canada's largest forging press. The 7,000-ton press installation was completed in 1954 after an expenditure of some three million dollars.

Dosco ingenuity made history in the world of steel with a successful technique to supply raw materials for this huge press. Red-hot ingots are shipped from Sydney and Montreal for this press. Hours later the ingots arrive in Trenton

—still red-hot. Packed in vermiculite in special railroad cars, the ingot drops in temperature only 150 degrees during the long journey. As a consequence, the task of reheating an ingot of this size is greatly reduced.

Apart from the large machinery required to finish the heavy products of the forging press is a shell shop which is a model of automated production. From initial drawing to final finishing and inspection, each step of the production line is perfectly balanced.

Axles for railroad cars are one of the most important products of the Trenton Steel Works. At this plant are located several Morey-Trenton lathes which finish axles rapidly and with precision.

Eastern Car at Trenton is one of Canada's major producers of railroad cars. The car industry is one which historically experiences sharp production peaks and valleys. The pent-up demand for railroad cars accrued throughout the periods of depression and war, enabled this plant to operate regularly until 1955 when a reduced replacement program by the railroads brought operations to a standstill. The resurgence of demand in the fall of 1955 has resulted in the placing of orders which should maintain operations at a high volume level for some time to come, but the danger of reduced activity is an ever-present threat. This situation could be alleviated by relating railroad car production to the long term needs of the economy so as to provide more uniform employment for the workers in this industry and savings to the purchasers of this equipment. Solution of these problems would contribute to the future stability of this area of Nova Scotia.

The third production unit at Trenton is Trenton Industries Limited. It is at this plant that Dosco Miners and other equipment for the mining and manufacturing industries are produced.

The products of this plant are a tribute to the skill and energy of Nova Scotia craftsmanship. The workers will proudly say "other people may be able to do this job, but none can do it better."

* * * *

The Dosco empire retains its ties with the shipbuilding tradition of the Maritimes through the operations of Halifax Shipyards Limited. The two shipbuilding and ship-repairing yards at Halifax and Dartmouth are complementary—the one in Halifax being designed for the building and repairing of larger ships and the other for the construction and reconditioning of smaller craft. For repairing vessels out of water, the Halifax plant utilizes two dry-docks, one of which is Canada's largest floating dry-dock. Dartmouth has four marine railways for the handling of lighter vessels.

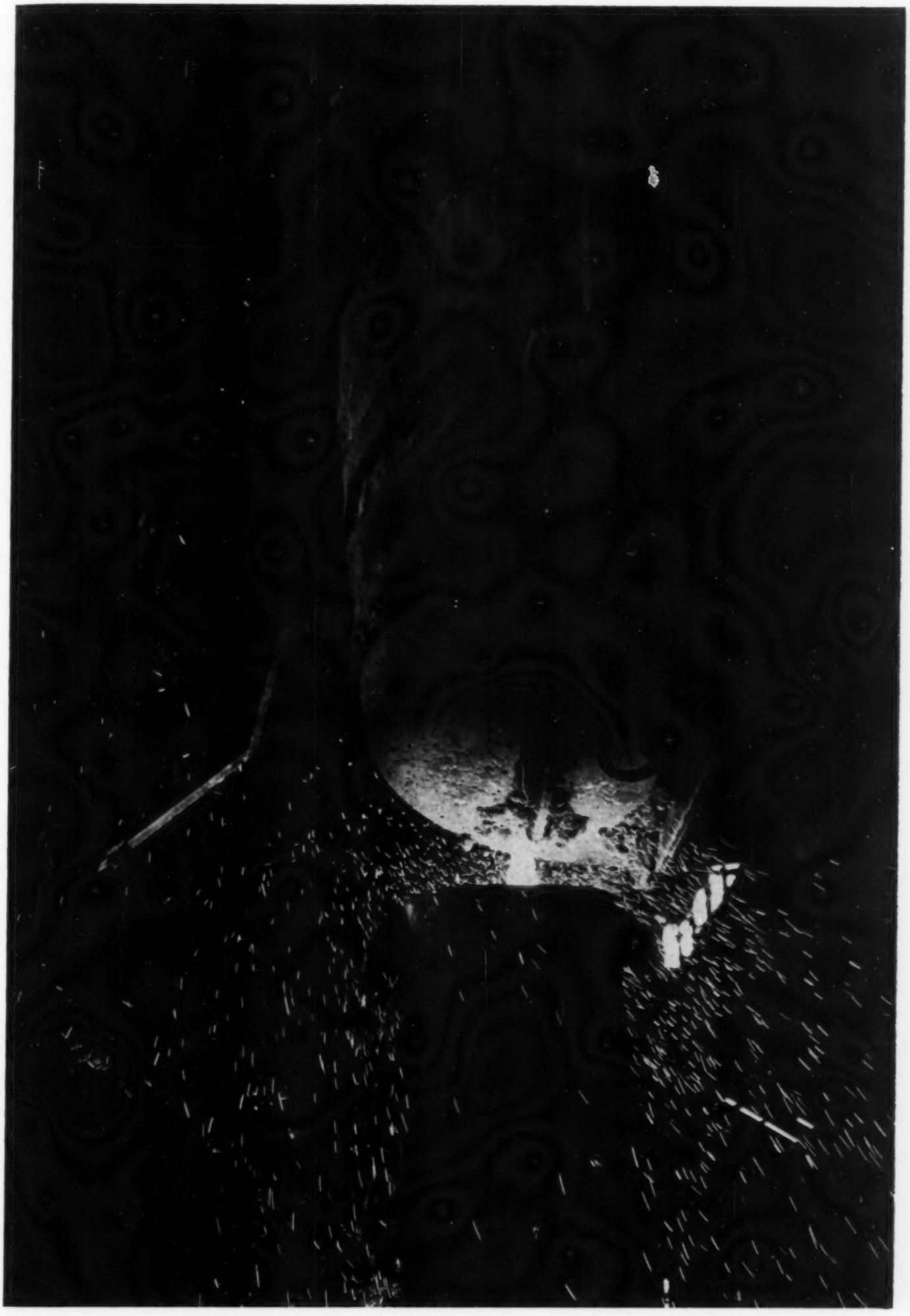
The Halifax yard occupies 45 acres with 3,300 feet of frontage on the harbour. Plants and shops and equipment necessary for the repair of ships include crane services, a machine shop, a paint shop, a galvanizing plant, a joiner shop, a carpentry shop, a mould loft, a blacksmith shop, a pipe shop, a sawmill, a pattern shop, a boiler shop, a welding shop, an electrical shop, drafting, designing and inspection departments, offices, stores, press, wharves, railways, dry-docks, harbour craft and a large floating crane.

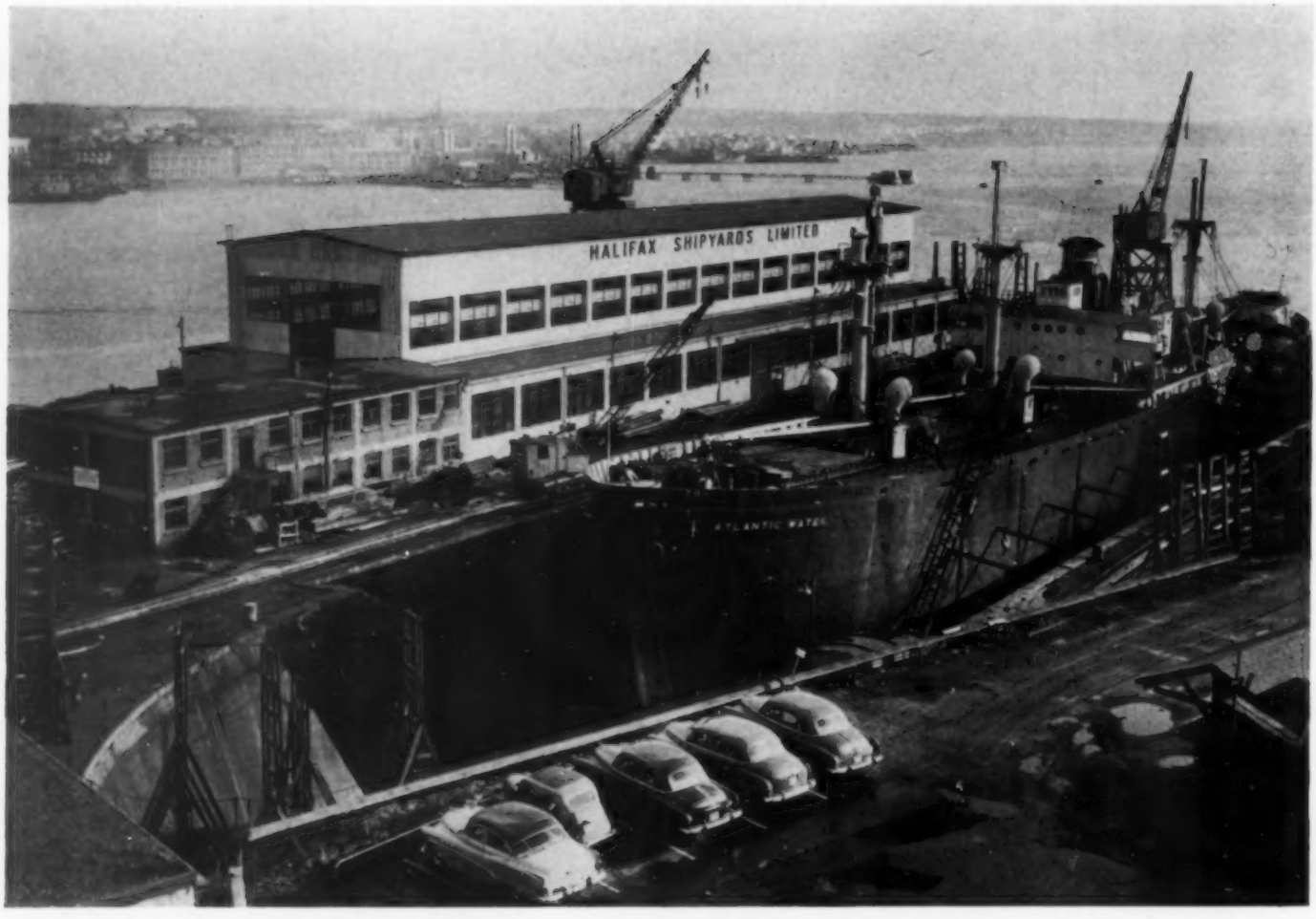
These facilities provide for the construction of any kind of ship up to 10,000 tons, for the repair of vessels up to 25,000 tons in dry-dock and any size in water. The long list of naval and merchant vessels built and repaired in these yards has provided the Halifax Shipyards with a world-wide reputation for excellence of marine engineering.

Another Dosco fabrication enterprise which has established its ability to survive in the Maritimes bears the name of its founder, James Pender. Located in Saint John, the units of James Pender and Company, using rod from the Sydney mills, produce a variety of nails, staples and other wire products. This plant is in continuous production of supplies required by the surrounding area.

Located closer to the central Canadian market for fabricated steel products is the Dosco unit, Canadian Tube and Steel Products Limited in Montreal. This plant produces a widely diversified line of steel products. Facilities include two fifty-ton electric furnaces which have a combined capacity of about 100,000 tons of steel a year. Here, too, are

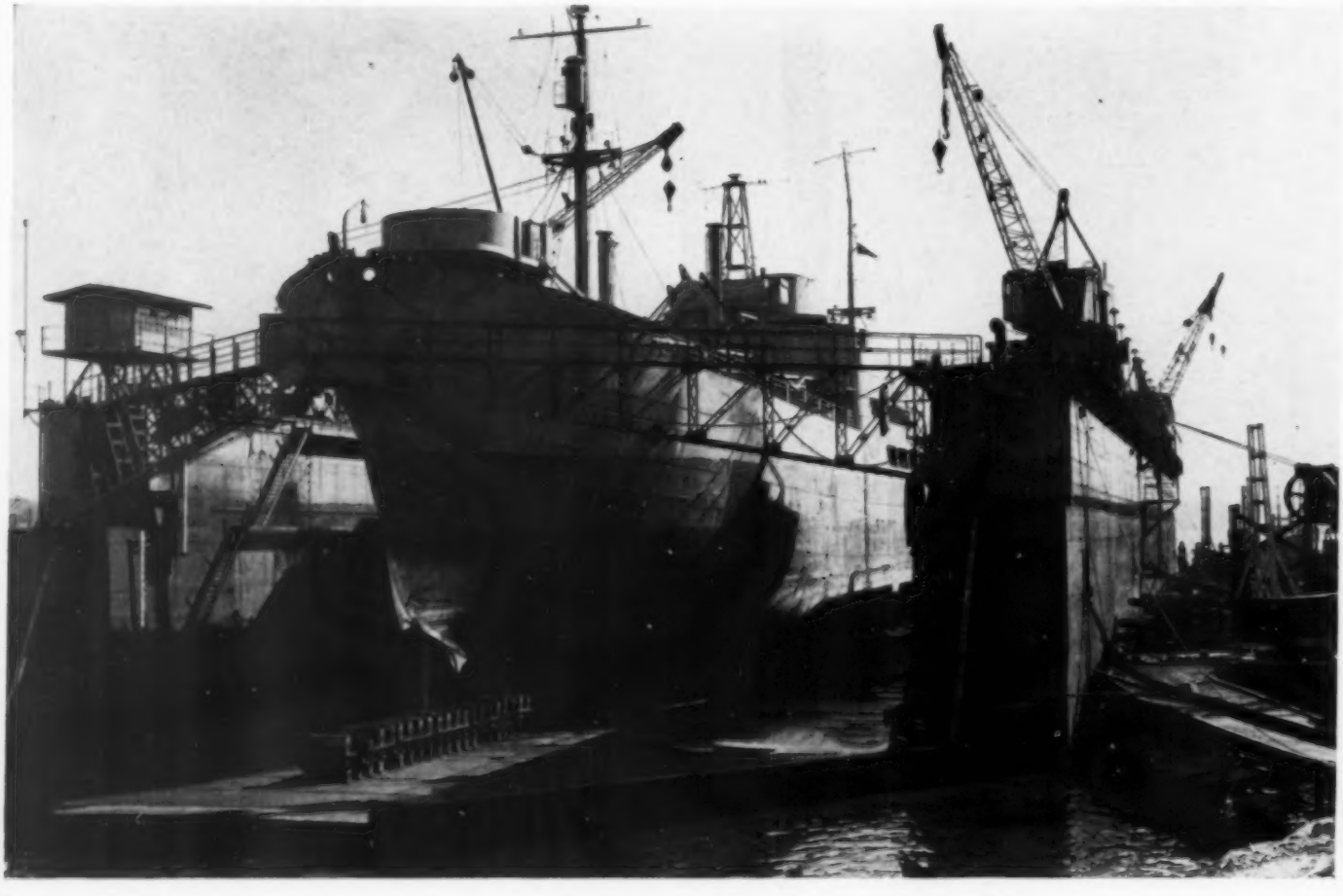
Right.—Pouring red-hot steel into moulds is a spectacular and dramatic phase of the steel-making process.





The dry-dock at Dosco's Halifax shipyards accommodates ships up to 25,000 tons. The company repairs and builds ships, small or large. Bollinger

Canada's largest floating dry-dock, located at Halifax shipyards, accommodates ships of any size. National Film Board

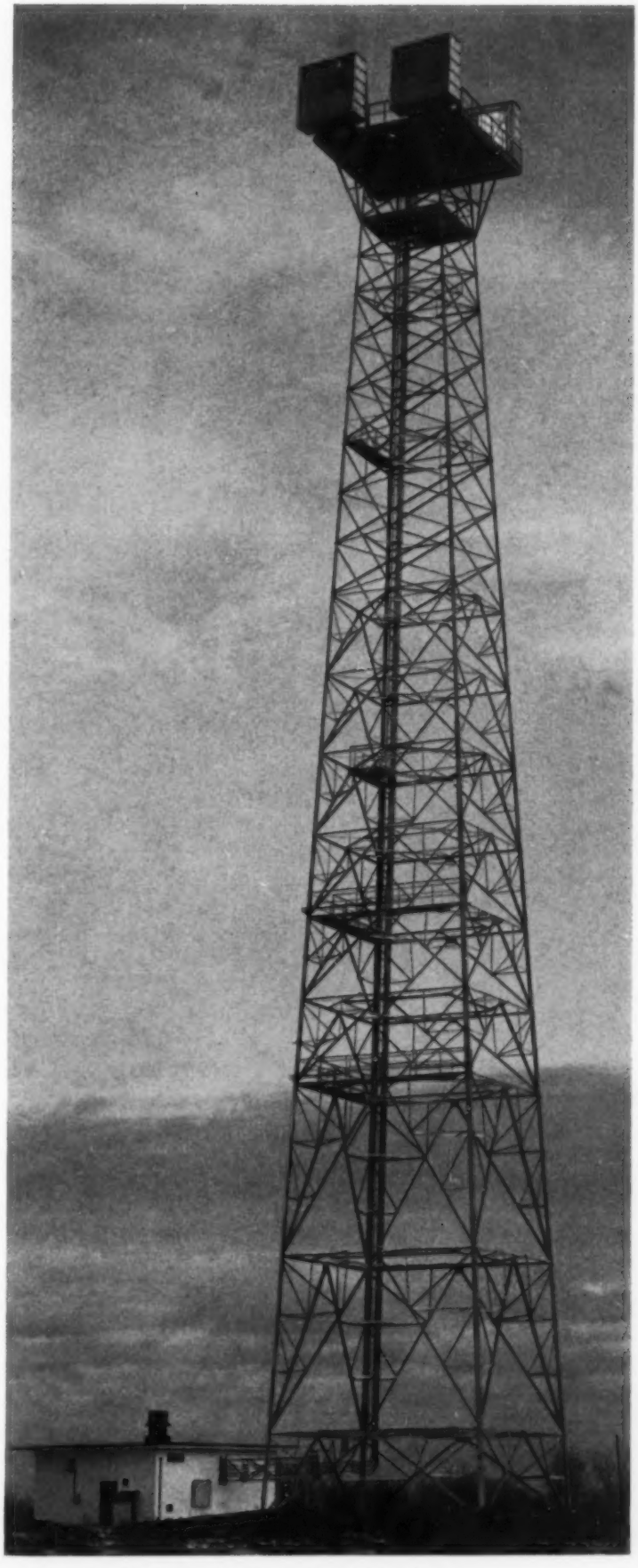


modern, high-speed eighteen and ten-inch rolling mills. The eighteen-inch mill rolls bars and shapes in addition to performing as a break-down mill for the electric furnace ingots produced at Canadian Tube. It relies, however, in large measure, on billets shipped from Sydney as does the ten-inch mill which produces a wide range of steel sections.

A unit of particular significance at Canadian Tube and Steel Products Limited is the new high carbon wire mill. This new plant contains continuous patenting and galvanizing lines, both of which employ the most up-to-date technical advances made in the industry. In addition, Canadian Tube has capacity to draw 20,000 tons of plain wire from which are made nails, staples, bail ties, bolts and nuts, and many other products. All required special heating and treating facilities are available. Canadian Tube derives its name from its original purpose which was the production of pipe for industrial and domestic use. The pipe mill produces butt-weld pipe up to 4″ in diameter and makes a substantial contribution to the supply of this material in the Canadian market.

In Toronto and Windsor, the operations of Canadian Steel Corporation Limited and Graham Nail and Wire Products Limited use rod from Sydney to produce a variety of wire, nail and fence products. These operations have long served the heart of the Canadian market and can be regarded as important extensions of the Maritime steel industry. In the near future, a new plant is to be built in the Toronto area which will enable the corporation to compete more aggressively in this market.

A Dosco subsidiary working in the heavy structural metal field is the Canadian Bridge Company. Canadian Bridge, with operations in Windsor and Montreal, has long been an outstanding fabricator of important structures. Few of the major spans built in Canada have been erected without participation by this unit of the corporation. A Canadian pioneer in the fabrication of transmission and television towers, including those in Toronto and Montreal, this company has made substantial contributions to the development of this relatively new medium of communication. By the nature of its operations, the company uses a large



Dosco subsidiary, the Canadian Bridge Company, Ltd. of Walkerville, Ontario, pioneered fabrication and erection of Canadian microwave towers for T.V. transmission. Bell Telephone Company of Canada

volume of bars and structural shapes produced from Sydney steel.

While this outline of Dosco activities omits reference to several of the corporation's associated companies, as for example Truscon Steel, mention should be made of three railroads—the Sydney and Louisburg Railroad, the Cumberland Railway and Coal Company, and the Essex Terminal Railway. The two first-mentioned provide important links between the coal mining operations and the major rail lines. The third connects Canadian lines with four major American railroads. A fleet of steamships carry ore, coal and limestone. Of these, three are owned directly by the corporation and others with a carrying capacity in excess of two million tons are on charter to the corporation.

What does the future hold for this great Maritime-based organization which is Canada's largest industrial employer, and as such is the economic backbone of the Maritimes? Certainly, if it is to keep pace with the surging Canadian economy and fill the role which, by the nature of its operations, it is so well qualified to do, growth and expansion must be part of its future pattern. To do this, it must be able to attract capital—which presupposes earnings comparable to those of its competitors.

On the liability side of the ledger, two things are apparent. One is the cyclical nature of the steel industry—a situation which bears as heavily on competitors as on Dosco. The other is the problem of transportation of materials to the heart of the Canadian market—a burden which bears on Dosco but not on some of its competitors. In essence, the strategic location of the primary steel industry close to its raw materials must enable it to produce steel at a cost which is lower than its competitors, by a sufficient margin to meet the additional cost of transportation to the heart of the Canadian market. Progressive increases in freight rates, together with a policy of applying horizontal freight rate increases make this problem doubly difficult for the Maritime steel industry.

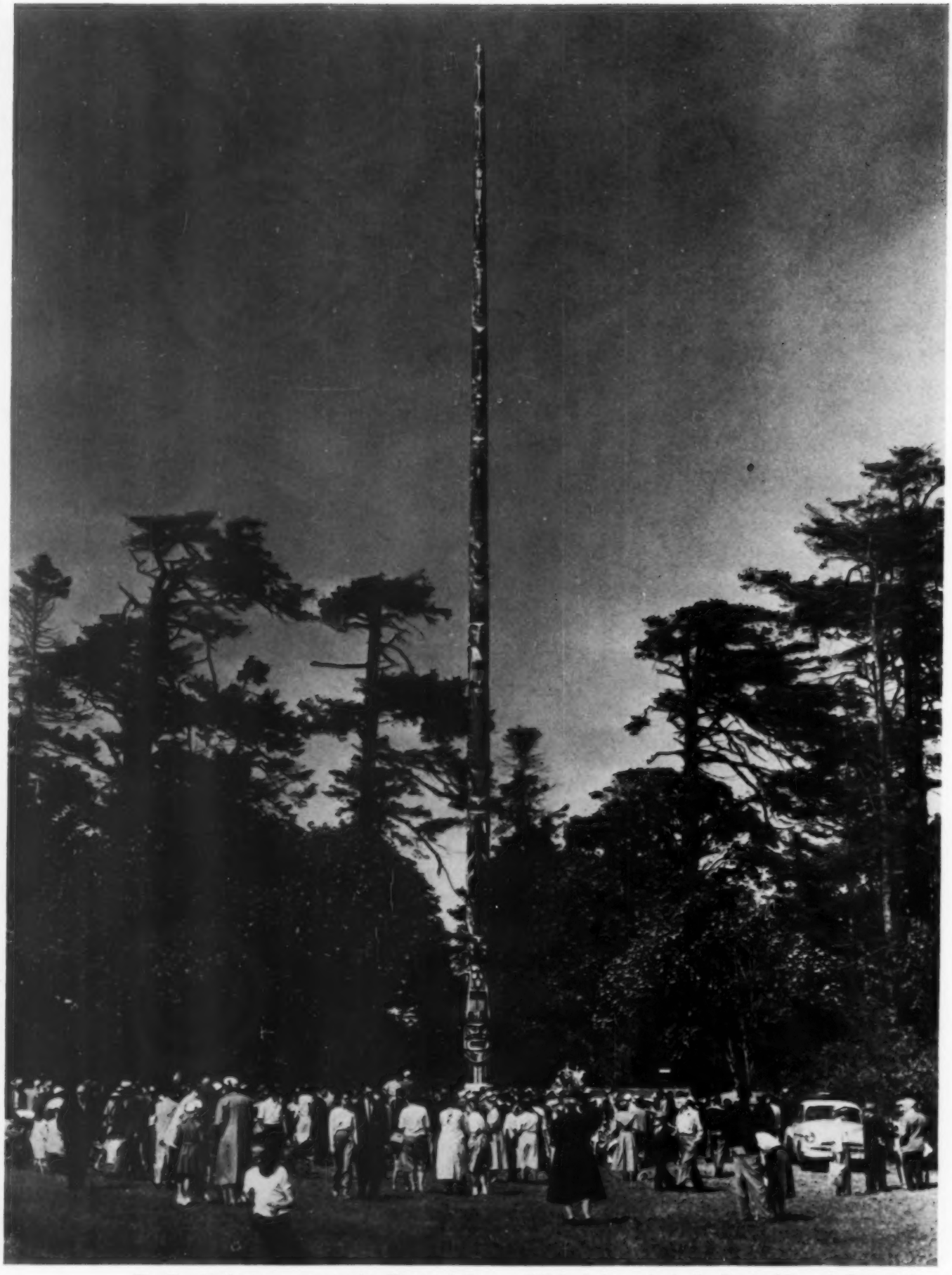
The asset side of the ledger is more encouraging. On the material side, the reserves of raw material are near at hand and impressive in volume. There is no foreseeable exhaustion for the iron ore of Wabana, the limestone of Aguathuna, the coal of Nova Scotia. Millions of dollars have been spent on plant and equipment which, in most respects, are as modern as any in the industry.

On the human side of the equation are assets, equally impressive, which derive from the hardy racial characteristics and astute Scottish traditions of the area in which this industry is founded. Labour relations have improved immeasurably over the years, promising economic benefits to the employees, the communities and the enterprise. Reflecting this trend was the installation last year of a pension plan which provides benefits in excess of those enjoyed by employees in other units of the Canadian steel industry. Such developments, with their implication of stability for the enterprise and security for the employees represent tangible contributions to the company's competitive position.

There appears to be nothing on the horizon to retard the growth of Canadian industry and the Canadian population. Against this background, the growth potential of the steel industry is impressive. Canadian steel capacity is in the vicinity of five million tons per year—representing approximately one ton of steel capacity for every three people in Canada. In the United States, where industrial expansion has advanced ahead of Canada's industrial program, steel consumption per capita is just double that of Canada's: two tons of steel for every three persons. Canada is rapidly expanding her industrial program. By 1980, with an estimated population of 27 millions, and a consumption per capita equivalent to that now obtaining in the United States, Canada will require about 20 million tons of steel a year, an increase in 25 years of 400%. A major proportion will be produced in Canada.

Dosco has the men, materials and methods to share proportionately in this increase. With these assets, even in the face of difficult problems, the vast, integrated organization is certainly capable of operating at an efficiency which will assure the fourth ingredient of a successful industrial enterprise—money.

Red-hot metal, swirling smoke, gigantic equipment—these are the symbols of progress among the proud men who make steel for the nation. Tapping blast furnace.



The Kwakiutl totem was raised in Victoria's Beacon Hill Park. It overlooks the Strait of Juan de Fuca and can be seen by passengers on steamers and residents of Washington State, eighteen miles away.

Kwakiutl Totem

by PETER LOUDON

Photographs by Bill Halkett.

OVERLOOKING the blue waters of the Strait of Juan de Fuca, facing seaward as once stood the Indian to watch the coming of the first white men to Vancouver Island, stands a new totem pole, the tallest in the world. It occupies a place of prominence in Victoria's Beacon Hill Park, where it can be seen from the sea, the air, and even from the United States shore, eighteen miles across the strait.

Unlike most other coast totems, it stands proudly upright, bright in new paint, its corewood hardly dried. In its 127 feet and seven inches of grandeur is restored the almost forgotten prestige of a noble people, the Kwakiutl. The monument bears silent testimony that British Columbia honours her origins and her native forebearers, and fosters hope that new generations of Coast Indians will stimulate a waning craft.

The cedar totem was carved by three members of the Kwakiutl group, Mungo Martin, his son David, and Henry Hunt. It tells the story of the Geeksem clan, a branch of the Kwakiutl of which Mungo is the present chief.

From cedar the forefathers of the carvers once made canoes, storage boxes and food containers. From cedar bark they wove clothing, mats, baskets, sails and rope. And from cedar, too, they fashioned their books—as we know them, totems.

Their world was filled with spirits and their mythology held that these spirits roamed in human, bird or animal form. Leisure provided by a bountiful nature, combined with an inherent love of beauty and decoration, provided the incentive for carving.

Their totems took many shapes. They were memorial and heraldic, and their ownership gave social prestige. Desire for prestige was especially characteristic of the Kwakiutl, whose members sought the biggest fish and the swiftest canoe, and in potlatch strove to make the grandest gift.

Producing the tallest totem was as important to the Kwakiutl carvers who undertook the task some months ago as it was to the white men who sponsored the project. But such pride has been rare in native Indians in recent years. The totem arts belonged to the past. Many poles have fallen from age, decayed, or disappeared. Some went to private collectors, some to museums and parks. It is recorded by Dr. Marius Barbeau, whose totemic studies fill several books, that many were destroyed by their makers in "hysterical revivals under a spurious banner of Christianity".

In 1940 the British Columbia Government acted to preserve the totem. Thunderbird Park, named after the most commonly depicted spirit, was established in Victoria and a collection was made of various specimens of the art. By 1952 many of these were suffering from age. The government found one of the last carvers, Mungo Martin, restoring totems for the University of British Columbia. He was commissioned to replace or refurbish the poles in Victoria.

Mungo is seventy-six. He had worked as a fisherman most of his life and made his home at Fort Rupert, central village of the Kwakiutl in the northern wilderness of the island. He had undertaken the work at the university in Vancouver hoping to attract the youngsters of the reserve to his craft. Totem carving could only live in the minds of the people: he knew that the best of his works would decay. (A green cedar, cut and with butt buried in the earth, usually will not stand upright beyond forty years. The oldest totems seen today rarely exceed seventy years of age.)

Mungo was glad to accept the task of overcoming this aging process at Thunderbird Park. But eventually his work ended. It was partly to provide employment for him and his two assistants that the Victoria Daily Times publisher, Stuart Keate, last January suggested that Victoria create the world's tallest totem pole.

Mungo could recall and sing 200 of the chanted eulogies of his tribe. Surely this was a

The elbow adze or kunjau, *with handle fashioned from a stout branch, was used for preliminary carving.*

The "D" adze or kimkliu, *a less primitive tool than the elbow adze, smoothed work of the latter.*

The knives, Nuquaykla *and* Hulquakla, *one straight, one crooked, were used in the final delicate carving.*

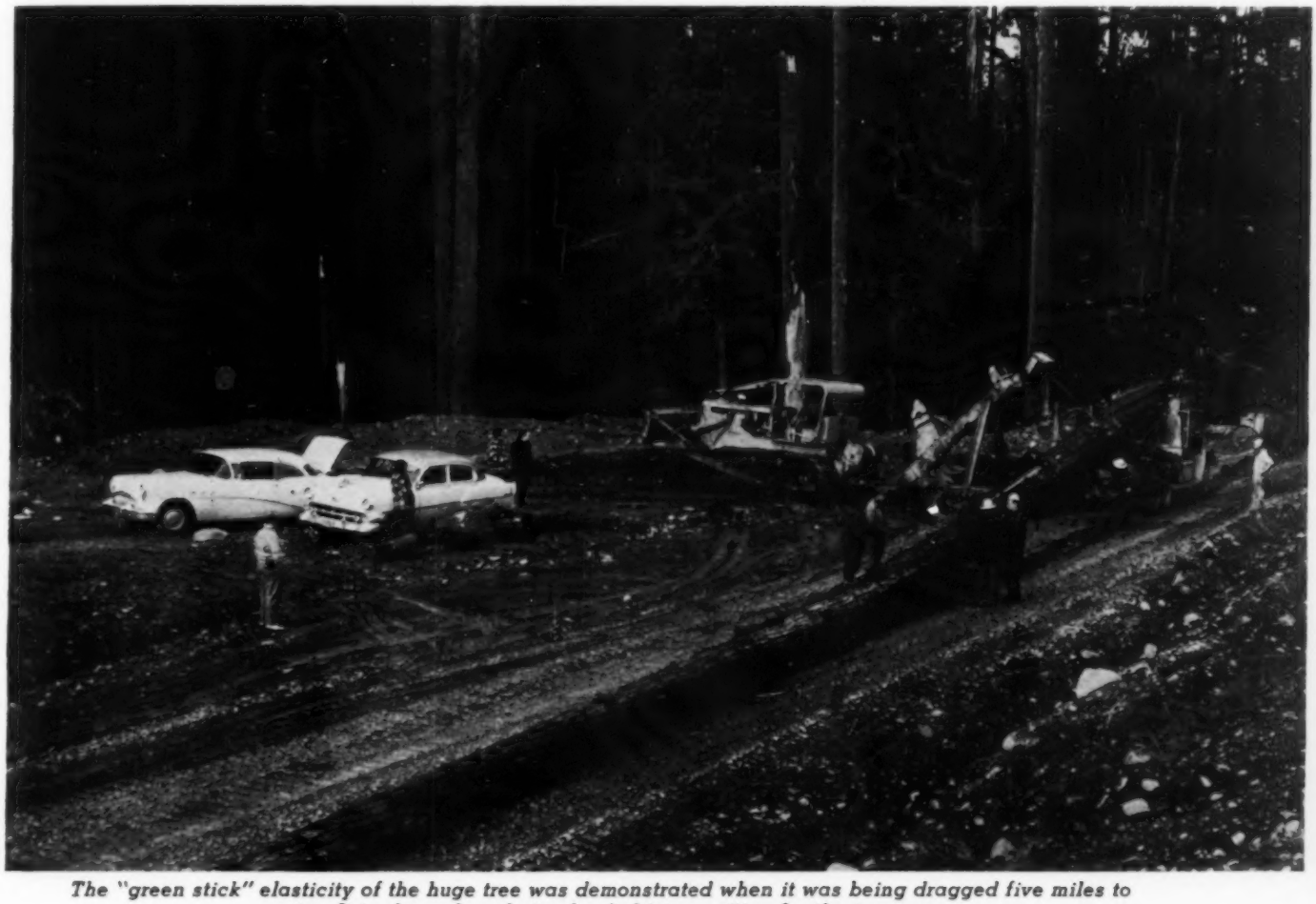
chance to win new fame for the Kwakiutl. Previously the tallest pole had been in the Royal Ontario Museum. Carved ninety-one years ago, it is eighty-six feet high. Mungo bettered it by over forty feet. And he needed every inch to tell the tale he had chosen—the founding of the Geeksem—and to add in compliment to the Kwakiutl group generally at least two figures prominent in the storied origins of other clans.

Mungo, or to use his Indian name, Chief Naka'pankim, says that Geeksem was one of the first men of the Kwakiutl. Some were created full-grown, while others were transformed from animals. Geeksem was created at Gold Beach near the Nahwitti River on the island's north coast.

Living alone in a small house, Geeksem awakened to an unearthly din one day. Peering out, he saw a totem rising from the beach, and each of the figures in it was alive and making its own cry. The bottom figure was a man, Baguanum, who wore a neck-ring of woven bark of the red cedar. Baguanum told Geeksem that the figures were to be the crests of his descendants. Geeksem was then given the cedar bark neck-ring and was told that the spirits would aid him. His sons and their sons have used the crests in various ways ever since. Never before Mungo Martin undertook his task had they been used on the same totem, however.

On the Kwakiutl totem Baguanum is placed on the bottom and in succession above him are the cannibal bird Hugwhug, the killer whale Makinukw, the sea lion Glikan, the eagle Kwig, the sea otter Kasa, the whale Kwagam, the beaver Tsawi, man, the seal Kiquati, and the wolf Uligan, topped by two "first men" of other Kwakiutl clans.

Such an ambitious project would have been beyond the capabilities of Mungo's ancestors, so huge a tree was required. But to use the white man's mechanical aids was not inconsistent with history, for there were few totem poles before Europeans came to the west coast of Canada. Some small house-posts and simple mortuary poles had been observed by Captain Cook in 1780, but it was the fur trade which furnished the Indian with steel blades to make elaborate totems.



The "green stick" elasticity of the huge tree was demonstrated when it was being dragged five miles to water. It is shown here being loaded into position for the journey.

The tug, Island Rover, *lent to the city for the purpose, noses into Victoria harbour with the tree in tow. It was one of history's most valuable logs: over 10,000 people bought shares in it.*

Gleaming in its fresh coat of multi-coloured paint, the totem pole lies waiting to be moved to the park. Red, black and yellow are the dominant colours. The colours are brighter and more sun-resistant than those used by earlier craftsmen.

Chief Mungo Martin, the master-carver, donned a woven cedar head-band and pied blanket for the dedication ceremony and spoke in the Kwakiutl tongue. On his right is British Columbia's Minister of Education, Ray Williston; behind Mungo is Stuart Keate, publisher of the Victoria Daily Times.

More than simple steel blades were required for the tallest totem, however; for the tree which Mungo chose reached 160 feet toward the sky. It weighed nine and one-half tons and would have sheathed five houses with thick cedar siding. It was selected after careful scrutiny of twenty-three other forest giants on a B.C. Forest Products preserve in the Muir Creek area near Sooke in a stand at least 250 years old.

Felling the tree intact was another problem which would have defied the early craftsmen. Extraordinary care was required to ensure against breakage or bruising. Bulldozers ploughed up a bed of soft mud to cushion the fall, then with power-saw and axe the tree was brought to earth undamaged. After being trimmed, it was hauled five miles over a path cleared through the brush by bulldozer to the coast. From there it was taken twenty-four miles by tug to Victoria harbour, where it was hoisted by two mobile cranes over the stone causeway opposite the British Columbia Legislative Buildings while police diverted traffic and held back crowds that came to watch.

A truck carried the pole to Thunderbird Park. The carvers then went to work, using the hand tools of their fathers. The carving of the Kwakiutl totem had begun.

There was no doubt that the white man's city supported the project. The logging operation and the hauling, the supplies of weatherproof paint, the construction, lighting and landscaping of the base, and the site all were donated. Costs, including the carvers' salaries, reached $8,500. To defray the expense, shares in the totem were sold around the world at a cost of fifty cents apiece. There were over 10,000 shareholders, and their names were later inscribed on a scroll and buried at the base.

With due ceremony, the world's tallest totem was dedicated on Monday, 2 July 1956, before a crowd of thousands, appropriately observing Canada's birthday by honouring the race which preceded the white man and established a unique Canadian heritage.

The pole was too long for the work-shed used during renovation of Victoria's other totem poles, so work on it had to be done outdoors. Shown here are Chief Mungo Martin (left), Henry Hunt and David Martin.

Mother Mary Bertine examines the work done by two pupils in her Industrial School on the island of Dominica in the West Indies. The mats woven there are sent all over the world.
John Rennie

Handicraft Mats of Dominica

by ADELAIDE LEITCH

ONE DAY, on the steaming, rainy island of Dominica, a Belgian nun looked around at her unfamiliar surroundings and tried to think of some way to help the teen-aged inhabitants of the Caribbean island. She conceived an idea that started out as a rehabilitation scheme and developed rapidly into a local island handicraft. Today it is almost a home industry.

The main raw material for the handicraft is a simple local product — grass. But, today, the Dominican grass mats, woven in plain or in intricate patterns by the fingers of young Dominican girls, are sold all over the world, and so many orders come in on the infrequent mail-carrying boats that the supply often lags behind the demand.

Ten years ago, sweet-faced Mother Mary Bertine who had been sent from the homeland convent in Belgium some years before, started the convent's Industrial School in Dominica. Then, its purpose was similar to one of our auxiliary classes, aimed at stimulating self-respect in the less fortunate members of the community by giving them something to do. The "something to do" was handicraft.

Mother Mary established her school in the little building under the palms, virtually on nothing. With no book of instructions, no precedent on the island to guide her, she had to make her own designs—a few simple ones at first, laboriously sketched to scale and modified with experiment. Later, she went on to more intricate

ones and finally filled an entire scrap-book with mat designs ranging from a simple four-by-four doormat to a large living-room rug.

The grass she uses is island-grown, a strong, sturdy grass that thrives in the north of Dominica and must be brought down to the town of Roseau on one of the small coastal launches. Care must be taken in working it, and it is selected for use while still green and faintly damp. At this stage, it has the strength it requires; when drier, it will break. Woven into plaques on wooden blocks a foot or so square, it is later sewn together with more strands of grass in the manner of a patchwork quilt.

When she needed a new design or a new wood block, she made it. When she needed needles that were longer and stronger than anything the convent had, she used old umbrella ribs sharpened to fine points and with slits cut in them for eyes.

Gradually, Mother Mary's work began to take on new meaning when the local white families discovered that the mats and rugs that the girls were turning out were both pretty and practical, well suited to the airy rooms of the old French plantations that had been turned into modern living quarters.

The auxiliary class began to be self-supporting, and the girls began to draw small salaries for their work — an important boon in Dominica where remunerative employment was scarce. Mother Mary tried to schedule the work so that fingers flew fastest from November to January.

"We like to give the girls lots to do then," she says, "so that they will have a little extra money for over Christmas."

The tourists, who visited Dominica and scoured the island for souvenirs, found the mats, bought them, took them home, found that they took years to wear out — and told their friends. Unsolicited orders began to come in from unexpected sources. The girls began to do an occasional piece of work to order, sometimes from a design supplied by the purchaser and calling for a special size and shape for a special floor, such as the diamond-shaped pattern custom-tailored for one client who ordered "something to match the diamond pattern of my floor."

Although the grass mats of Dominica are shipped to places like Bermuda, United States and Canada now, the personal touch is still there, and marketing is largely still a word-of-mouth and space-available matter.

Mother Mary Bertine continues to add new patterns to her scrap-book. Since she left Belgium twenty-two years ago, she has never been back. The mats produced at the Industrial School have done far more travelling in the past ten years than she.

Floors were made before chairs. One of the girls at the school sits on the mat she is stitching. The same coarse grass used in the weaving serves as thread. Needles are made from old umbrella ribs.

Adelaide Leitch

Fish Out of Water

by DOUGLAS LEECHMAN

National Museum of Canada photographs except where credited.

IT WAS FISH that came second to fur in the minds of the factors of the old fur-trading posts. Fish had long been the staple food of the natives of the Northwest Territories and the Yukon, with caribou also an important item when it could be had, but it was a poor trader who did not realize his dependence on the fishery.

Whitefish was the biggest catch in the lakes of the Northwest Territories; and the streams flowing into the Pacific yielded vast quantities of salmon, the principal food fish of the Yukon. Grayling, lake trout, northern pike, and ling, were all taken in large numbers.

So, too, were the inconnus (conies), so named by the first French-Canadian voyageurs when they met this "unknown" fish. Largest of all were the sturgeon, some of which were enormous. Franchère records one that measured thirteen feet nine inches, and weighed 1,130 pounds.

Nearly all the fur-trade posts were located, after careful consideration and discussion with the Indians, on a good fish lake, for everybody depended primarily on fish to feed both himself and his dogs. The posts relied almost entirely on food obtained in the country, for the importation from "outside" of enough rations to support them through the year would have cost far more than the profits of the fur trade could stand.

Good fishing stations were nearly always owned by Indians, in whose families they often had been held for generations. They were valuable property, for a family that owned no fishing rights had no means of putting up a supply of dried fish for the winter, except by working for the more fortunate people who did hold such rights. Many a skirmish has resulted from an attempted theft of fish or poaching on fishing stations. Even today the choicest spots are most jealously guarded and preserved.

In winter, much fishing was done on the lakes, through the ice. On the slope of the Pacific coast, late summer and autumn were the busiest fishing seasons, when the fish ran up from the sea to spawn. Nets were used, as well as traps, weirs, and wheels. In the old days, the nets used in the Northwest were made of twine spun from the inner bark of the willow, so brittle and tender that the twisting of the thread and the netting had to be done under water. Today nets of cotton twine and nylon are used, some of them made locally, others bought ready for use at the trading post.

Traps were of many different types, some simple, others most elaborate. At the end of the season, they were taken out of water and kept safely till needed again. Weirs had to be rebuilt each year, for they became so damaged by the ice and spring floods as to be useless.

John McLean, in his *Notes on Twenty-five Years' Service in the Hudson's Bay Territories*, describes a combination weir and trap in some detail: "Where the current and depth of water permit, they bar it across by means of stakes driven into the bottom with much labour, and standing about six inches apart; these are strongly bound to a piece of timber, or "plate", running along the top; stays or supporters are placed at intervals of ten or twelve feet, the upper end bearing against the plate so as to form an angle with the stream. Gaps are left in the works of sufficient size to admit the *varveaux*, or baskets, in which the fish are taken."

When the autumn fishing season approached, great preparations were made by Indians and whites alike. Nets had to be inspected and mended, traps repaired, weirs built, and scaffolds on which to hang the drying fish erected. Then, too, fuel had to be collected for the fires. A general air of excitement and activity pervaded the camp, for the fishery was a rendezvous and a picnic ground at the same time. Families who had not seen each other for months met again, the girls noted how much the boys had grown, and the boys saw how desirable the girls had become.

Opposite:—A fish trap on a river in British Columbia.

A combination fish weir and trap on a river near Klukshu Lake in the Yukon Territory. Fish are caught in the rectangular structures, known as varveaux *or baskets.*

Generally it was the men who did the actual catching of the fish, the women and children who looked after the cleaning and smoking. For whitefish, the simplest method of preservation, possible only in very cold weather, was to let them freeze solid. For the salmon, taken in warmer months, other methods had to be adopted. One of the commonest was to fillet the fish, removing the backbone completely, and "barring" or slashing the meat at intervals of an inch or so to allow the air and smoke to penetrate quickly and hasten the drying. The

Cleaning a catch of salmon on the Teslin River in the Yukon Territory.

Fish fillets, slashed to hasten han
ion.

An Indian fish wheel on the Yukon River. The current turns the wheel and the fish are scooped up and dumped into the chute which deposits them in the box in the foreground.

backbones, often with the heads still attached, were hung up separately to dry, becoming eventually the basis of a rich fish broth. The fillets were kept extended by thin wooden skewers and hung on racks over a smouldering fire.

Flies were there in millions and a palpable stench hung heavy in the air. John McLean says: "Even in dry seasons during this process, the ground all round the scaffold is thickly covered with large maggots: but in wet seasons the sight is even more loathsome."

ten hang on a rack near Carmacks ion.

After the salmon are cleaned, they are filleted, smoked and dried.

When the fish were dry enough they were put up in bundles or bales, often tied with vegetable fibres. Whitefish used to be done up in fifties, inconnus in twenties or thirties. Fish are still baled to this day and a passenger on the river boats is never in doubt as to whether there are any bales of fish on board. His nose tells him. Nevertheless, well-prepared smoked salmon, reasonably fresh, is a great delicacy.

Sometimes the dried fish was made into pemmican. For this, it was first cooked and then dried so well that it could be beaten to a powder. It was then mixed with an oil extracted from the fish intestines by boiling them; sometimes cranberries were added as a special delicacy and the resulting pemmican was kept in birch bark containers for use in winter months. So, too, was fish roe preserved in oil.

The fish wheel, which can be used only in water so silty that the fish do not see the wheel, is often thought of as an old native device, but actually was introduced into the Yukon by white men not long after 1900. It consists of wicker, or wire, baskets fixed at the ends of four arms, arranged like the spokes of a wheel. The wheel is mounted vertically at the ends of strong poles that hold it in the river, fifteen or twenty feet from shore.

The force of the current turns the wheel, scooping each of the four baskets in turn through the water and catching any fish unfortunate enough to be within their reach. As the wheel revolves, the fish in the baskets are dumped into a chute that leads to an openwork box in the water where they are held till the owner of the wheel comes to collect his catch. These wheels, which are still in use here and there, were at one time more common, being used especially by men who ran summer boarding camps for sleigh dogs, this being the easiest way of securing food for their boarders.

Even today, in the West, the Indians dry great numbers of fish; years ago the supplies laid in were almost incredibly large. Alexander Ross estimated that the Snake Indians of the southern part of what is now the State of Washington took 20,000 salmon a day in the season. In 1811, Harmon had 25,000 salmon in his winter stores and felt that it was none too many. The standard ration appears to have been a most generous one: four salmon a day for each man. His dog got one whitefish, weighing perhaps slightly over three pounds.

Once the fish are dried, they are either baled for shipment or stored in a place where they will remain dry and be safe from marauding wild animals. Caches for dried fish and other goods on the Teslin River in the Yukon Territory.

EDITOR'S NOTE-BOOK

B. J. McGuire (*Maritime Industrial Empire*) has been a professional writer since his undergraduate days at the University of Toronto, where he was editor-in-chief of *The Varsity*. A periodic contributor to the Canadian Geographical Journal, he is now a partner in the public relations consulting firm of Forster, McGuire and Company, Limited, of Montreal.

* * *

Peter Loudon (*Kwakiutl Totem*) spent part of his childhood in northern British Columbia. His admiration for the Indians of Canada dates from these early years. He recalls seeing his first totem poles when he was less than five years old. Mr. Loudon is on the staff of the *Victoria Daily Times* and contributes articles to various publications.

* * *

Adelaide Leitch (*Handicraft Mats of Dominica*) is a freelance writer and one of our most frequent contributors. Her colourful articles and photographs are familiar to most of our readers.

* * *

Dr. Douglas Leechman (*Fish Out of Water*) is widely known as an archaeologist, anthropologist, author and lecturer. Formerly Chief Archaeologist of the National Museum of Canada in Ottawa, he is now Director of Western Canadiana at the Glenbow Foundation in Calgary. Dr. Leechman has written many articles and book reviews for the Journal.

AMONGST THE NEW BOOKS

Along the Old Roads

by Harry B. Shufelt

(Brome County Historical Society, $1.25)

This pleasant little booklet throws an interesting historical light on the life of the Eastern Townships over a hundred years ago. It was coincident with the beginnings of the Montreal railway, with trains that tore up the tracks at thirty miles an hour, and so were reduced to fifteen for economy's sake. Post offices, schools and churches were new and uncertain ventures; and the career of Almas Knowlton, born at a farm at Knowlton in 1822, was certainly a romance of local enterprise as he worked his way

(*Continued on page* XII)

Royal Bank Manager in Ciudad Trujillo* learns how coffee is prepared for export from the Dominican Republic

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THE TRAVEL CORNER

Canoeing in Ontario's Algonquin Park in autumn. Richard Harrington

Wilderness Re-created

It is an ironical comment upon the society in which we live when a tract of wilderness has to be rescued from the inroads of civilization, but it is heartening to know that this is done sometimes before it is too late. Ontario's largest provincial park, Algonquin, is a case in point. The park was threatened with commercialization. The thin wedge of hot dog and souvenir stands and summer cottages had been driven in and seemed about to continue its usual process of widening. Then the provincial government stepped in with plans not only to arrest it but to reverse it.

Already the change is apparent. On Cache Lake the park's main summer hotel, Highland Inn, is being demolished. Cottages, built when it was possible to lease Crown land in the area, are being taken over by the province. Most of these are to be torn down and the land is to be cleared for public camp sites. On the shore of Lake of Two Rivers there is a camp site for trailers, supervised by the ranger staff and provided with pure water for drinking, firewood, fireplaces and lavatories.

No more leases are to be granted and no more licences of occupation issued to individuals or private enterprise. Algonquin is to become what it was intended to be according to the act passed by the Ontario Legislative Assembly in 1893—"a public park and forest reservation, fish and game preserve, health resort and pleasure ground for the benefit, advantage and enjoyment of the people of the province."

Those who cannot afford expensive accommodation while on vacation or who prefer to camp out can take advantage of the park's facilities at a nominal cost, and many are doing so. Numbers, also, pay visits to the Nature Museum beside Source Lake, where specimens of local flora and fauna are displayed, free lectures are given and motion pictures are shown. Fishing for lake trout, bass and speckled trout is said to be fairly good in the lakes and rivers reached from the highway along the park's southern boundary. Maps of Algonquin and its waterways may be obtained from the Ontario Department of Travel and Publicity, Parliament Buildings, Toronto.

The 1956 Travel Boom

This is a restless world in more senses than the politic alone. Statistics indicate that unprecedented numbers of people have been travelling this year in many parts of the world. Every other person encountered these days can reel off the names of half a dozen acquaintances who are spending a few weeks in Europe, the West Indies or Hawaii, and others who are travelling from the international border to some southern extremity of the continent.

There was a time when the summer months were the popular vacation period and the time when travel reached its peak; but since the introduction of the five-day work week and the extension of annual holidays to two and three weeks, vacation time has become any time, travel has spread itself round the calendar, and many resorts which once were open only in summer or winter have remained open all year. The introduction of package tours and strenuous promotion by transportation companies, travel agencies, regions and municipalities have also encouraged travel.

It has been pointed out that the money spent by Canadians on visits to other countries exceeds the nation's expenditure on any single import commodity and that per capita they spend more on pleasure travel than any other nationality in the world. On the other hand, the tourist industry within our own borders has attained significant proportions: there are now more individuals employed in it than in agriculture. Despite this travel consciousness, roughly one-quarter of the population has never visited any province other than the one of residence. Regionalism, ignorance of national geography and prejudice are perpetuated by this failure to become acquainted with unfamiliar areas—a serious consequence, for the stimulation of national consciousness is vital to the unity of a young nation.

(Continued on page XII)

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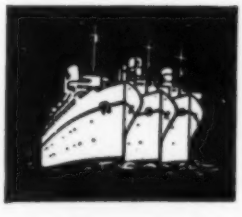

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THE WINDSOR
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MAXIME RAYMOND, Q.C., *President*

(*Continued from page* X)

Prince Edward Island and Newfoundland are the provinces least visited by residents of other parts of the land. Yet each has the distinctive atmosphere, landscape and folkways that are basic components of the "differentness" sought by vacationers. Most of us still have much to see within our own borders.

Innsbruck Festival

Next year the name of the Austrian city, Innsbruck, will be added to the long list of European communities holding festivals. Plans have been made for a festival of drama and music there in the summer of 1957. Outstanding soloists will be invited to take part in the concerts. The stage productions will include Shakespeare's *Hamlet*, Schiller's *Don Carlos*, and Grillparzer's *Weh dem, der luegt.*

Sailings to Australia

It has been announced by the Cunard Steamship Company Limited, general agents in Canada and the United States for the Orient Line, that there will be nine round-trip voyages from Vancouver and San Francisco to Australia by Orient Line vessels in 1957. The ships in this service are the *Orsova*, *Orion*, *Orcades* and *Oronsay*. They will sail from the west coast of this continent by way of Honolulu and Suva to Auckland and Sydney, Australia. The *Orcades* is scheduled to make an additional voyage from Vancouver on 29 June by way of San Francisco and the Panama Canal to England and France.

New Map of Quetico Provincial Park

A new map of Quetico Provincial Park, Ontario's second largest provincial park, is now available. Scaled at two miles to the inch, it shows the main portage routes as well as park ranger stations and licence ports. Copies may be obtained for fifty cents from the Department of Lands and Forests, Parliament Buildings, Toronto and from the department's offices at Fort Frances and Atikokan.

American President Lines

American President Lines has announced that the third class sections of its luxurious liners, *President Cleveland* and *President Wilson*, have been air-conditioned, new cocktail lounges have been installed and sun decks for third class passengers have been enlarged. The company, which is planning to promote travel to Hawaii and the Orient by students and recent graduates of schools and universities, has pointed out that return passage to Japan may be obtained for as little as $600 and to Hong Kong and Manila for $720.

* * *

AMONGST THE NEW BOOKS

(*Continued from page* IX)

through the professions of blacksmith and photographer and finally took up dentistry with much success. The fact that he also made violins, invented a washing-machine, and was a good churchman was typical of the all-round mentality so common amongst those pioneers whose varied efforts built up the prosperity of the Eastern Townships.

The illustrations and portraits in the booklet are excellent.

SYLVIA SEELEY.

Bugles and a Tiger

by John Masters

(Macmillan, Toronto, $4.50)

This study in autobiography is as thrilling as any of the author's novels, perhaps more so, for the true facts are so exciting that they need no adornment of romance. The phase of Indian military life which he shows is all the more valuable because it belongs to a period now vanished forever and yet within the memory

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of every reader — that period which the author describes as "the last twilit days of the Indian Empire". He also gives us a very striking picture of the English military cadet's life at the Royal Military College, Sandhurst, and the training for the great task of serving in the Indian army. There were already distant rumours of war in the air, when in 1934 he sailed back to India to take up his duties with the second battalion of the fourth Prince of Wales's Own Ghurka Rifles, and he brings the hard training and bitter conditions of tribal warfare very vividly before us. It was a wonderful proving ground for the far greater ordeal which awaited the young soldiers when the war clouds of 1939 broke around the world.

Mr. Masters' style is so clear and incisive that he seems to take the reader back with him into that vanished pre-war era in a manner which adds materially to our understanding of the scene. SYLVIA SEELEY

* * *

Principles of Physical Geography

by F. J. Monkhouse

(University of London Press, $6.00)

Although the volume is designed primarily to satisfy the requirements of the advanced level of physical geography for the British General Certificate of Education and for the overlap between high school and university study, its utility in countries other than the United Kingdom will be readily appreciated.

The arrangement is logical and conventional; the treatment of land forms and processes is followed by a consideration of the Hydrosphere and the Atmosphere. A final section on Vegetation and Soils provides an extremely useful addition, so that this single volume embraces the entire field of physical geography.

The author fortunately holds the conviction that the use of maps and diagrams and photographic illustration is one of the main methods of geographical procedure, both for the beginner and the qualified practitioner. The book amply supports this conviction. The standard of illustration is so high, however, that it serves to emphasize the poor execution of two fundamental diagrams (Figures 34 and 52), both showing valley development. Admittedly the work is introductory, but the controversy of slope development is unnecessarily masked. Furthermore, the pecked lines of figure 34 show unfortunate irregularities in what is intended to be an idealized series of valley cross-sections.

In many sectors a balanced approach to major controversies is achieved, yet occasionally the author appears unduly dogmatic. He states that "a glacier erodes in two main ways"; by plucking," when the ice at the base of the glacier actually freezes on to rock protuberances . . . and tears out blocks," and by abrasion. In view of the vast amount of recent research, the above, as an unconditioned statement, is somewhat open to question.

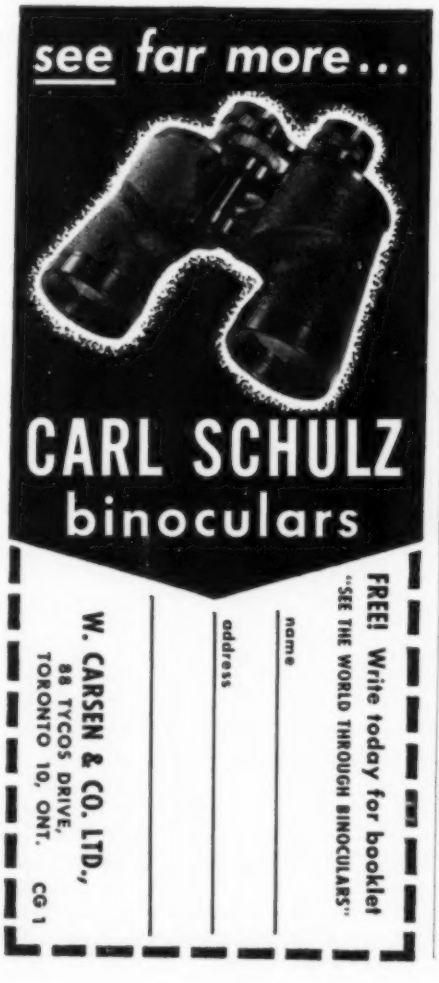
Chapter III on Vulcanicity, although adequate, would be improved by the addition of a clearly tabulated classification of volcanoes.

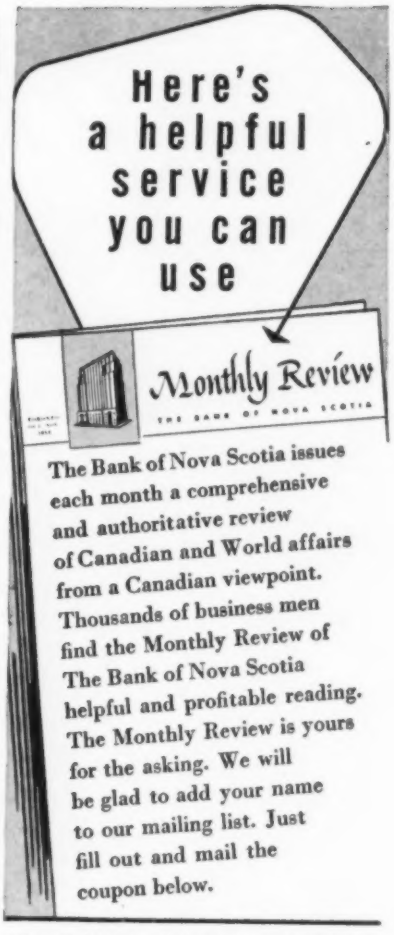
The sections on the Hydrosphere and the Atmosphere are adequately covered, although the contributions of C. W. Thornthwaite in the field of climatology have been unfortunately ignored.

In general the author has faced the ever-present problem of shortage of space very well. It is therefore surprising that he occasionally falters in this discipline. While only allowing five lines to indicate the possible causes of ice ages, he allows a similar space for a deterministic explanation of the sea-faring tradition of the Norwegians.

In spite of these occasional weaknesses, the book is well written and

(*Continued on page* XIII)

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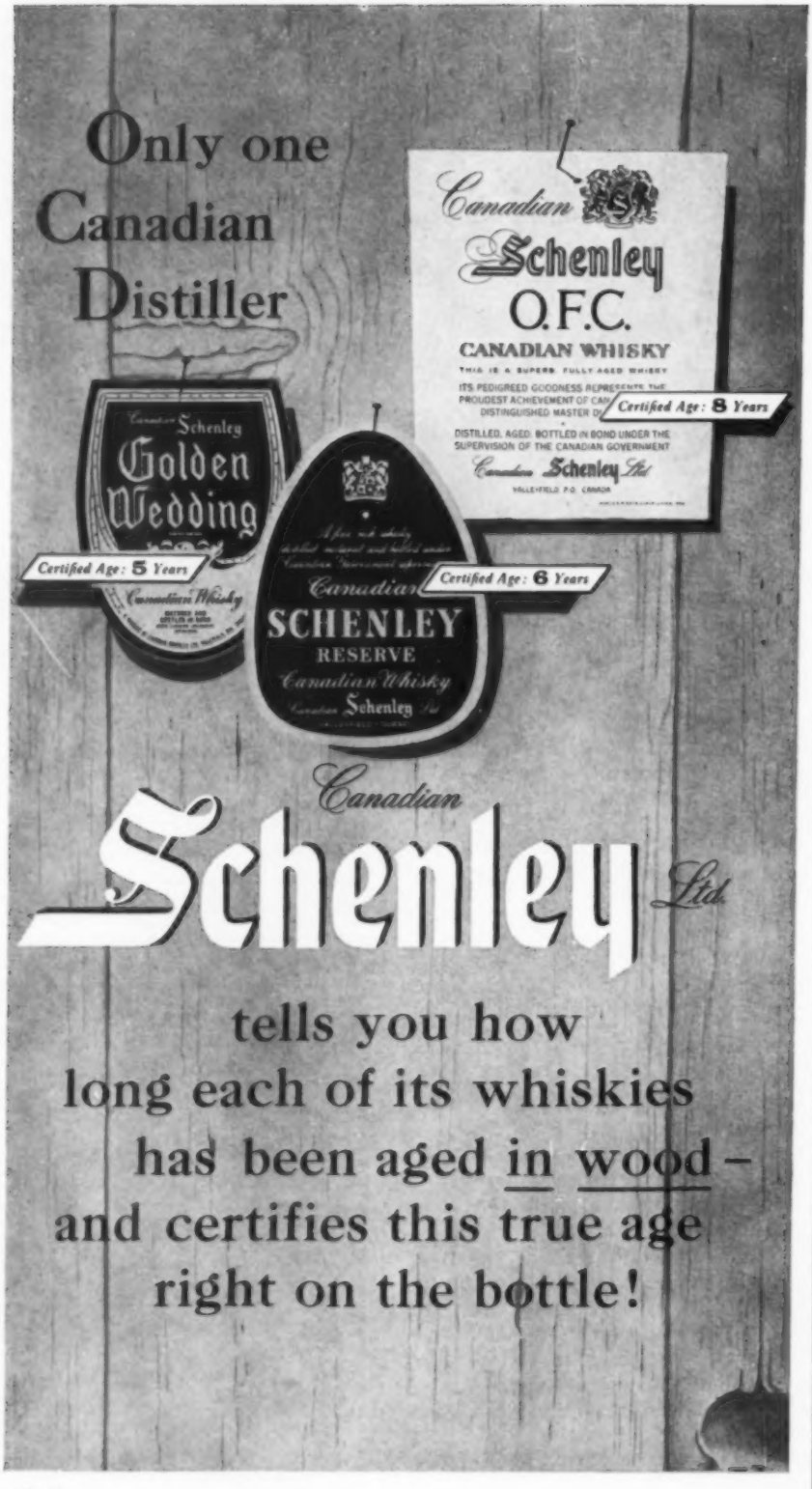
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Age in wood

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the subject matter hangs together easily. The author has managed to stress very emphatically the interdependence of the various branches of a broad field.

As an introduction to physical geography this work will serve a very useful purpose. J. D. IVES

* * *

Tree of Dreams
by Marius Barbeau
(Oxford University Press, Toronto. $3.50)

Our leading authority on native culture, Dr. Marius Barbeau is equally known for his study of the totem poles and customs of our Pacific Coast Indians and for his discovery and preservation of the stories, songs and arts of French Canada. Some of the saga of the Saguenay and the St. Lawrence are published for the first time in English in this too-slim volume entitled *Tree of Dreams*.

The great habitant legends which form over half of the book were previously published in French in *L'Arbre des Rêves* in Collection Humanitas of the University of Montreal (Les Editions Lumen 1947). These legends, including such classics of the Quebec repertory as *The Handsome Dancer* and *The Witch Canoe*, reveal much of the habitant's faith and his superstitions. In his preface Dr. Barbeau distinguishes between the folk-tale, which is pure fiction, and the legend, which is considered truthful. The legends set forth strange events in the lives of the people themselves, but their form and particulars are usually known by name, and the action has taken place at a fixed date and in a definite place.

To these the author has added several brilliant vignettes of folk personalities, prepared from folklore material which he recorded at first hand over a period of thirty years. These sharply-etched sketches of the Blind Singer, Alexis the Horse, Boily the Bone-Setter, The Yellow-Haired Potter, and The Village Crier make fascinating reading.

It is the poet's part to match treatment to subject, and by some hidden poetic compression of language Dr. Barbeau's deceptively simple narrative captures the homespun flavour of original telling. When future historians seek to know what manner of men were the early settlers of the Saguenay and the St. Lawrence, they will do well to turn to Dr. Barbeau's slight volume for the material they will not find in bulging records of facts. "We are such stuff as dreams are made of", and *Tree of Dreams* gives us some of the essential feel and texture of habitant life. W. R. JOYCE

The Barren Ground Caribou of Keewatin

by Francis Harper

University of Kansas Publications. Available from the Arctic Institute of North America, 1530 P Street N. W. Washington 5, D.C. $1.50 postpaid.)

This interestingly written account of the barren ground caribou of Keewatin is the result of six months' study, by the author, in the Nueltin Lake area, supplemented by data compiled from more than 230 sources. A wide range of topics is discussed, including ecology, general habitats and taxonomy. These are supported by an excellent series of photographs taken by the author.

As might be expected, considerable space is devoted to migrations, with a discussion of the probable factors responsible for these movements. It is interesting to note that the bucks form the vanguard during the autumn migration, but bring up the rear in the spring. Another interesting aspect of these movements is what the author terms the "retrograde autumnal movement", in which the animals, during the month of September, actually move northward to the barrens for a period of two or three weeks. This unusual movement, the author suggests, can be explained by assuming that the barren grounds are the true home of this species, and that in August they are driven into the woodlands under the stress of insects or the shortage of food. By September, however, the insects have disappeared, and the animals are free to wander on the barrens unmolested.

The section devoted to the caribou in relation to man is perhaps the most interesting and at the same time the most disturbing. The author states that in the years when there is a large migration the natives kill far more than they can possibly utilize and even in average years many are killed as fox bait. Another sad aspect of the picture is the cruelty inflicted on the animals through the use of light firearms. The reader is inclined to feel that the natives are undeserving of sympathy for their deprivations in those years when the caribou fail to appear, if in years of plenty they engage in needless slaughter.

Although the wolf is often regarded as a serious predator of the caribou, the author could find no evidence that such is the case in the Nueltin Lake area. He states that the wolf has not had any serious effect on the size and condition of the herds.

All those who are interested in our northland and its wildlife will want to place this interesting account high on their reading list. The author is to be complimented on making available such a wealth of information in such a thoroughly readable form.

AUSTIN W. CAMERON

* * *

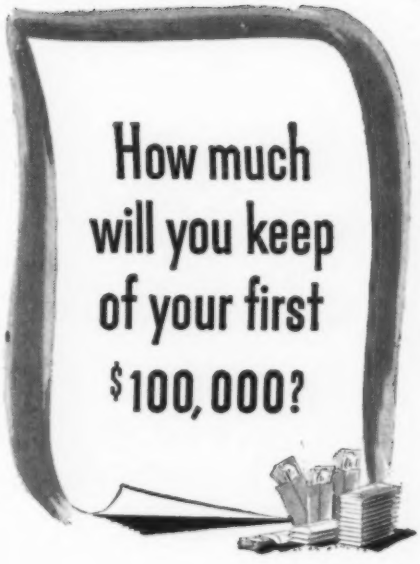
Visit to the Sherpas

by Jennifer Bourdillon

(Collins, Toronto. $3.50)

The last few years have brought such a flood of books about the Himalayas that it is a welcome change to find one that deals with Himalayan people rather than the mountains. Mrs. Bourdillon accompanied her husband as far as Khatmandu at the outset of the Everest expedition and then spent her time learning how the Sherpas live in a country so little designed for ease of human habitation that those who dwell there must struggle all their lives to fit into it as best they may. The main result seems to be supreme contentment, despite the fact that the people work so hard for such meagre returns. The mountains are sublimely indifferent to the comfort of those whose home is on their slopes. All tasks are hard tasks in a land too steep for wheeled transport, and the constant strain shows in the women's faces but not in their tempers, for the harsh life seems to produce good humour and friendliness. The Sherpa woman may start her maternal responsibilities at the age of twelve or little older, and if she looks aged and wrinkled at thirty, she is still smiling and content. How far religion enters into this point of view is wisely dealt with in an excellent chapter on monks and monasteries. The teachings of

(*Continued on page* XVI)



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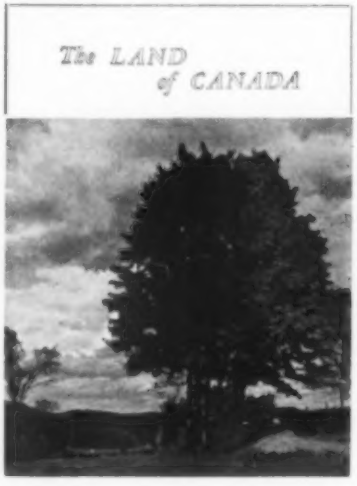

The Society takes pleasure in announcing that reprint booklets of Dr. J. W. Watson's article **The Land of Canada,** published in the April 1956 issue of the Journal, are now available.

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(Continued from previous page)

Buddhism would hardly seem responsible for the happy zest in life which the authoress found everywhere amongst the overworked village women and also amongst the cheerful monks who enjoy painting the walls of their monasteries with gods and demons in most vivid colours regardless of the fact that these gaudy presentations are alien to the Buddhist faith.

The human picture that the authoress gives us is most pleasing and the atmosphere of friendliness pervades the book. Her courage in seeking to understand other women's burdens in a stern and mountainous country was richly rewarded, and we from the safety of our civilized homes may gain much from reading of the risks and perils of her daily life among the Sherpas. SYLVIA SEELEY

* * *

Great Poland's National Park

by Jaroslaw Urbanski

(State Scientific Edition, Poznan.)

This valuable book written in the Polish language describes one of the most picturesque parts of western Poland, situated south of the capital city of the province of Great Poland,

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Moving Performance

Members of a Canadian Legion branch have designed and built a portable outdoor stage and donated it to a Veterans' hospital. Mounted on a trailer, it can be assembled in a few minutes into a 20′ x 27′ stage and moved to any part of the hospital grounds.

Light, easy-to-handle aluminum was the Legion members' obvious choice of material. And in case of sudden thunderstorms, it would be a simple matter to roll the performers, stage and all, under the nearest shelter. A typical example of how aluminum often provides not just one but several advantages on a single job.

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Poznan, on the River Warta, north of the ancient fluvio-glacial valley which once connected the Vistula waters with those of the Elbe.

The work in question is not a guidebook. The author after prolonged personal studies, offers us a popularly presented scientific monograph of Great Poland's National Park.

The reader will find in this interesting book the description of the entire region, with its waters, forests, meadows, and sandy areas. Discussion of the interesting kinds of plants and animals as well as the history of the flora and fauna in this particular spot is also included. In the last two chapters, Mr. Urbanski tells the reader about scientific studies conducted in the Park, and the history of the Park itself, and at the end of this monograph, we may find a comprehensive bibliography, a dictionary of scientific terms, and an index of Latin and Polish names of plants and animals. The book is richly illustrated with numerous, beautiful photographs and drawings, and contains a few explanatory maps.

In the opinion of the reviewer it would be a useful and sound venture to follow the lead of this edition, and try to prepare similar books dealing with our Canadian Parks. This kind of book would be of a very great value to teachers, youth, forest employees, and to all those who love outdoor life. It would teach and amuse them at the same time. It would explain to the readers in an informal but instructive way why some plants and animals should be preserved and others destroyed. Above all, it would increase love of our wonderful nature, just as the book in question is arousing similar feelings among the Poles.

T. P. Jost

* * *

The Romance of The Great Barrier Reef

by Frank Reid

(Ryerson Press, Toronto. $4.50)

As you run in towards Trinity Pass and the port of Cairns on a fine day the ship moves in a blue world. There is nothing but blue sky above and bluer sea below. Then you see a white string stretched from north to south across the western horizon. It is a line that is never still; it rises and falls in flickering motion. It is, in fact, the great swell of the Pacific breaking on the wall-like outer edge of the Great Barrier Reef of Queensland.

This is a "reef such as man had never seen before", as Sir Joseph Banks wrote after he had sailed along it in 1770 with James Cook who had

(*Continued on next page*)

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(*Continued from previous page*)

earlier charted the St. Lawrence and the coast of Newfoundland. It is indeed not a reef in the usual sense of the word but a world in itself, a vast maze of coral reefs, cays, banks and islands extending for more than 1,200 miles from north to south and covering an area larger than that of New Brunswick, Nova Scotia and Prince Edward Island together. Here and there in the labyrinth are lofty granite islands, clothed with pine and palm, that are full of breath-taking beauty. "No one" said an old seafaring man "can sail through the Hinchinbrook Pass and not believe in God."

From the reefs and islands of these perilous seas and from the continental coast that the Reef skirts, Frank Reid has gathered stories of desperate voyages and wild doings, wrecks and massacres, head-hunters and cannibals, hair-breadth escapes and strange deaths, buried treasure and weird mysteries of the sea. He tells of slavery and savagery, of blackbirders and the natives whom they kidnapped, and of the search for pearls and for the trepang or *bêche de mer*, the sea-slug from which comes the soup beloved of Chinese epicures.

It was the loss of *H.M.S. Porpoise*, with the noted navigator Matthew Flinders (grandfather of Sir Flinders Petrie, the great Egyptologist) on board at Wreck Reef that directed attention to the trepang of the Barrier.

Later vast quantities of the sea-slugs were gathered from the shallow waters along the reef. In 1920 the best dried trepang was worth about $3,000 a ton. But war and revolution in China had have an adverse effect on the industry. Frank Reid, who has worked with the trepangers, points out that gathering the sea-slugs is a messy, smelly business.

The author knows the Barrier Reef at first hand and has talked with actors in many of the scenes that he describes. He even talked in 1908 with Barbara Thomson, the girl from Aberdeen who was picked up by *H.M.S. Rattlesnake* (with T. H. Huxley serving on board) at Cape York in 1849 after she had lived for several years alone with the savages of Prince of Wales Island. Barbara had little to say about her life as a "wild white woman" sixty years earlier.

The author tells with a good deal of reserve stories of lost galleons and buried treasure. One of these concerns the silver table service once owned by Frank Jardine of Somerset, Cape York, who married a Samoan princess. He was a cousin of the father of Douglas Jardine, captain of the English cricket Test Team of 1932. The silver came from a coral-encrusted mass of Spanish dollars weighing 921 pounds found in 1890 at Boot Reef. The native legend of a ship with a silver keel may be taken for what it is worth.

The pearling rush to Torres Strait began in 1868 when Captain William Banner of the brig *Julia Percy* brought a cargo of pearl-shell to Sydney. Thursday Island became for a time the pearling capital of the world. In 1885 the pearling fleet numbered 195 luggers. In the early days naked divers brought up the pearl-oysters from depths down to twelve fathoms. Then came the day of diving-suits. Mr. Reid disproves the idea that white divers proved a failure as deep-water divers and that only Japanese were successful. Before the Japanese were brought to Torres Strait, Europeans were the leading pearl-divers.

Frank Reid has written a book of entertaining stories. Most of them are well founded. As for the yarns about Japanese visits to Queensland and Tasmania in the early part of the fifteenth century and of a Chinese voyage to Torres Strait in 1426 which he mentions, there is no need to take them seriously.

THOMAS DUNBABIN

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